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A Review of the Hardware, Iron and Steel Trades.

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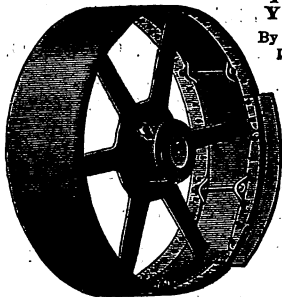
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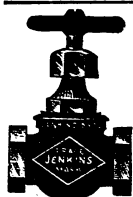
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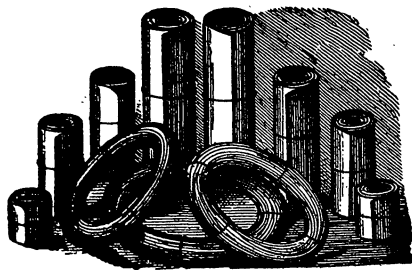
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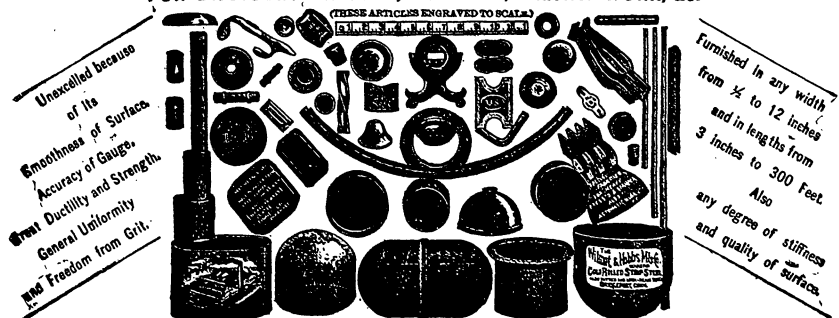
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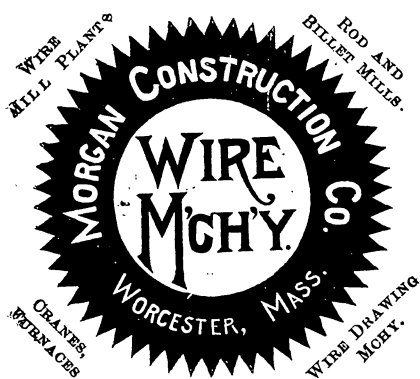
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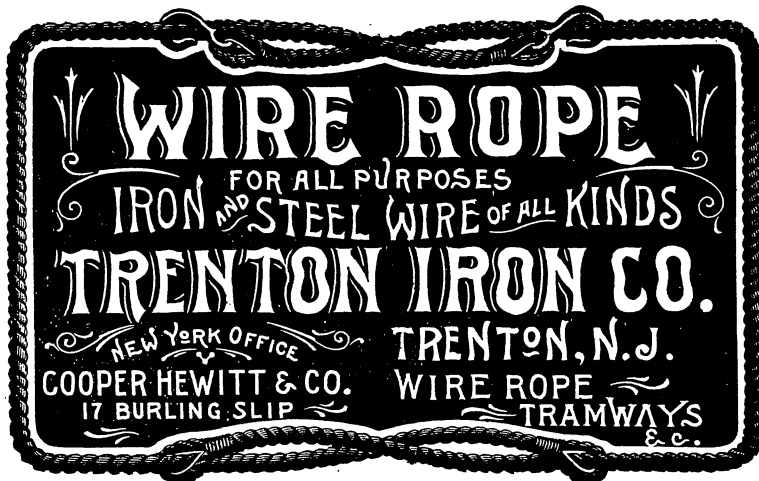
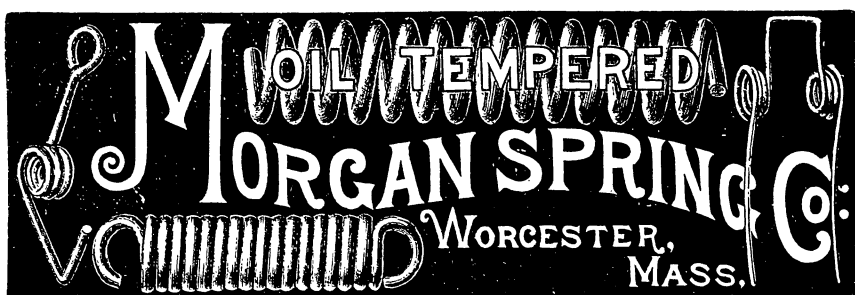
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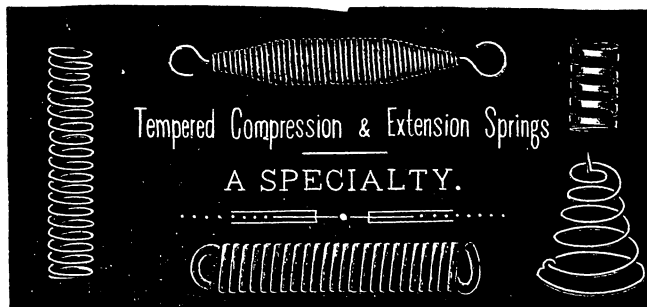


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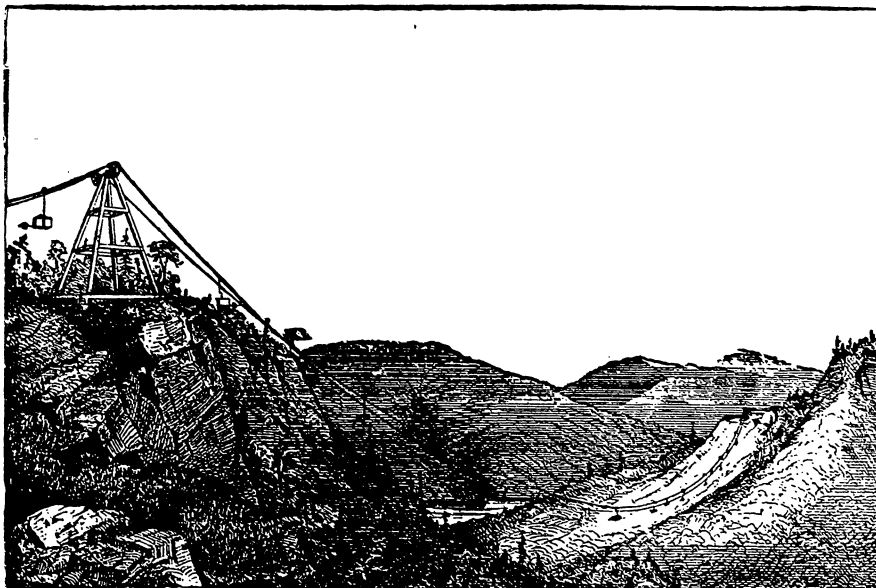
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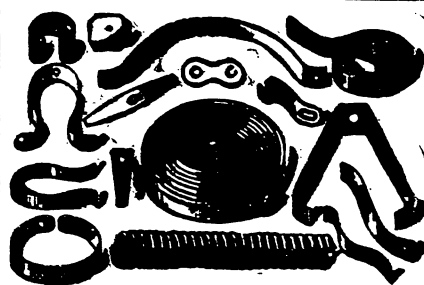
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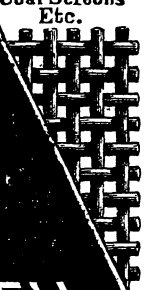
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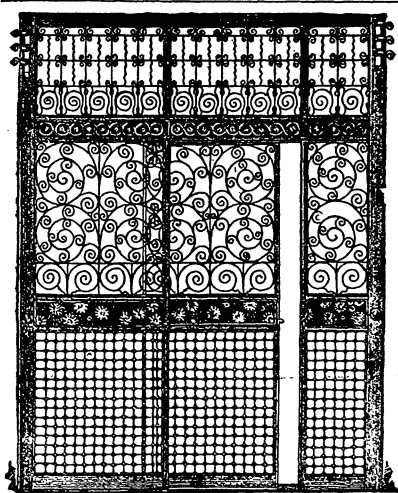
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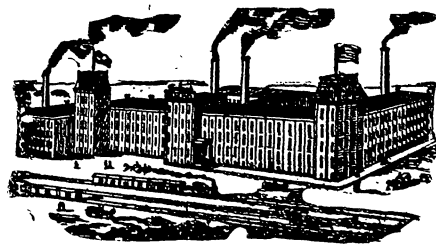
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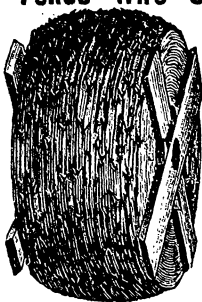
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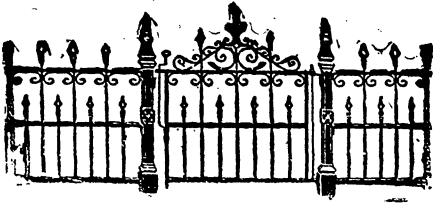
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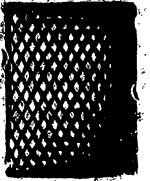


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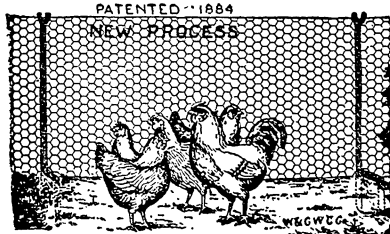
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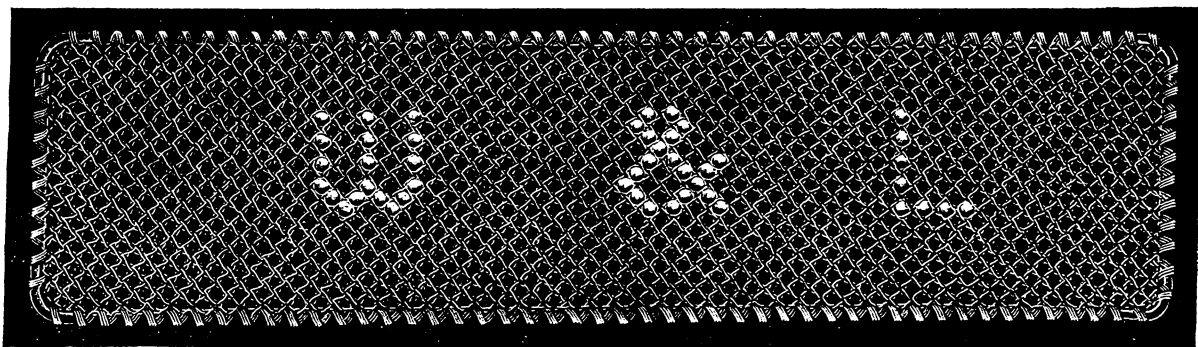
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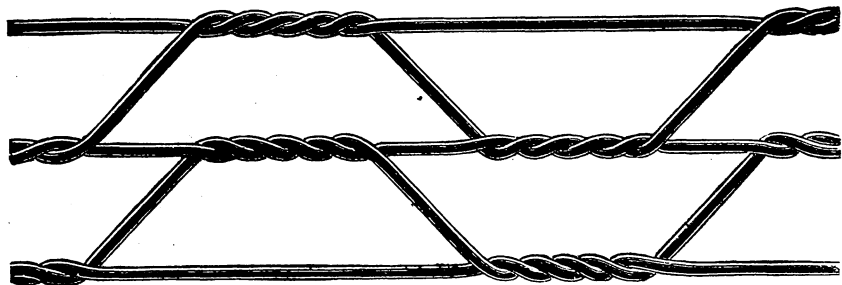


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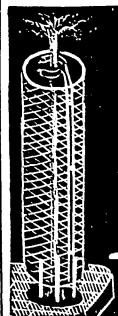
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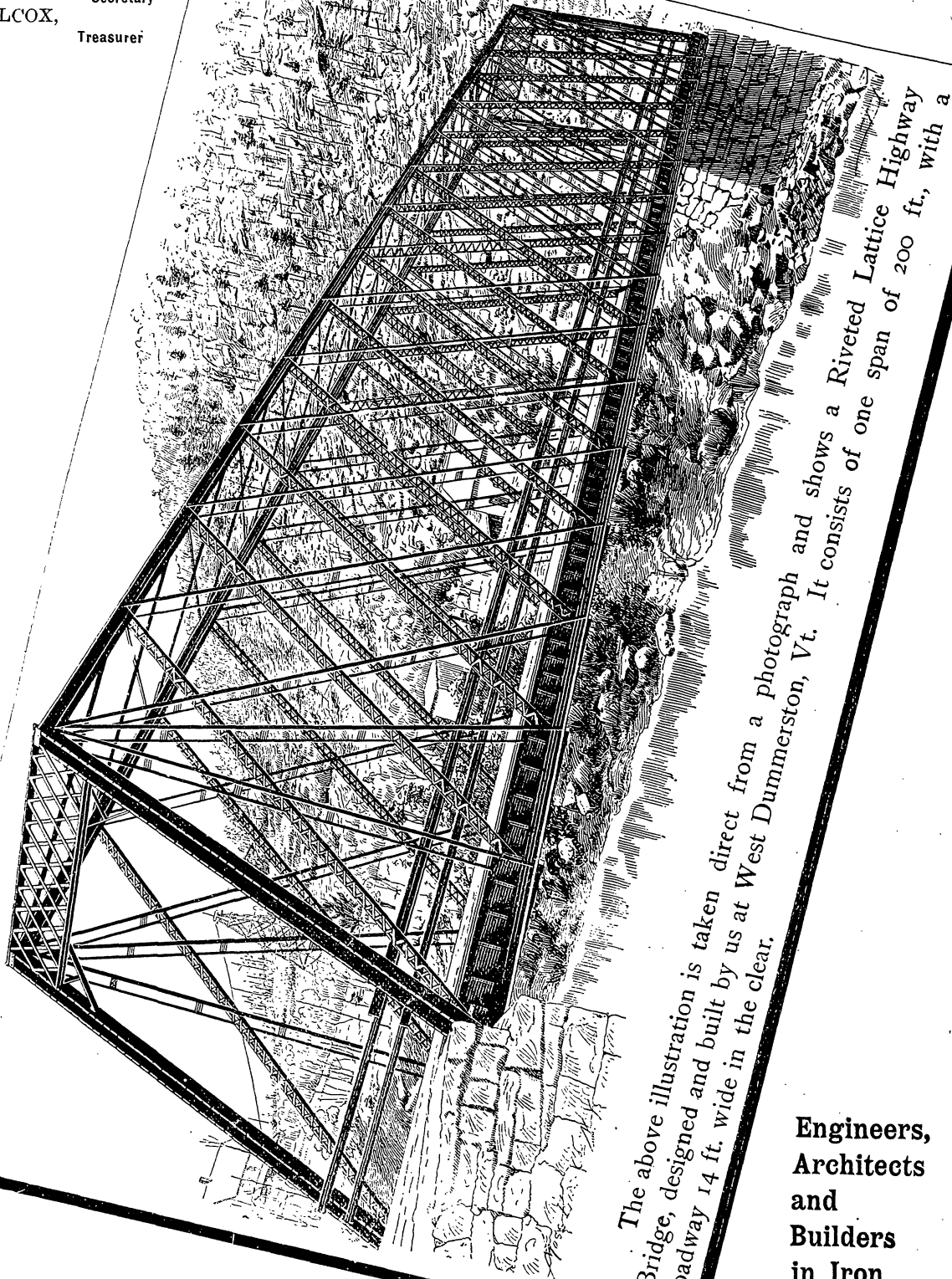
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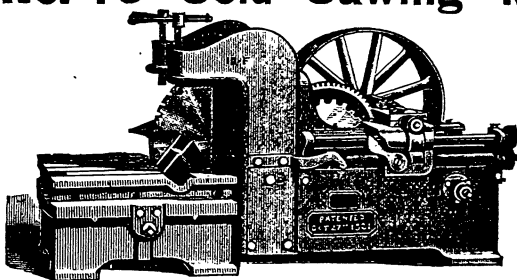
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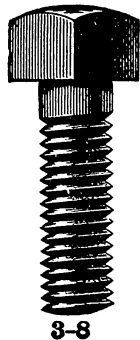
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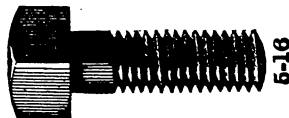
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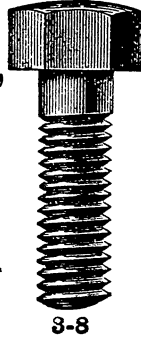


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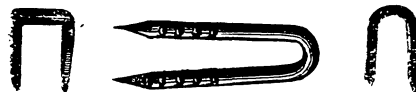
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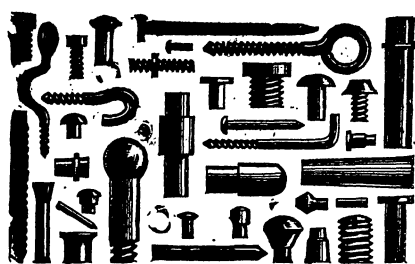
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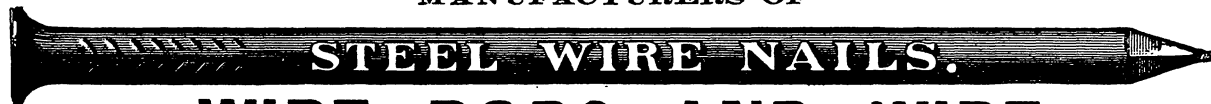
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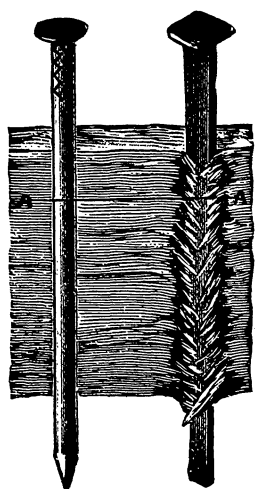
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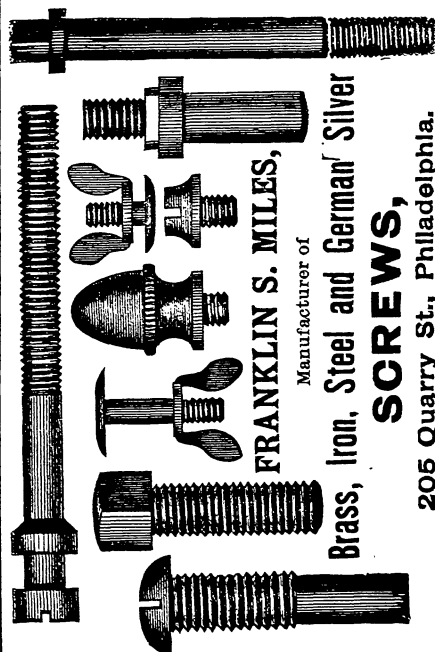
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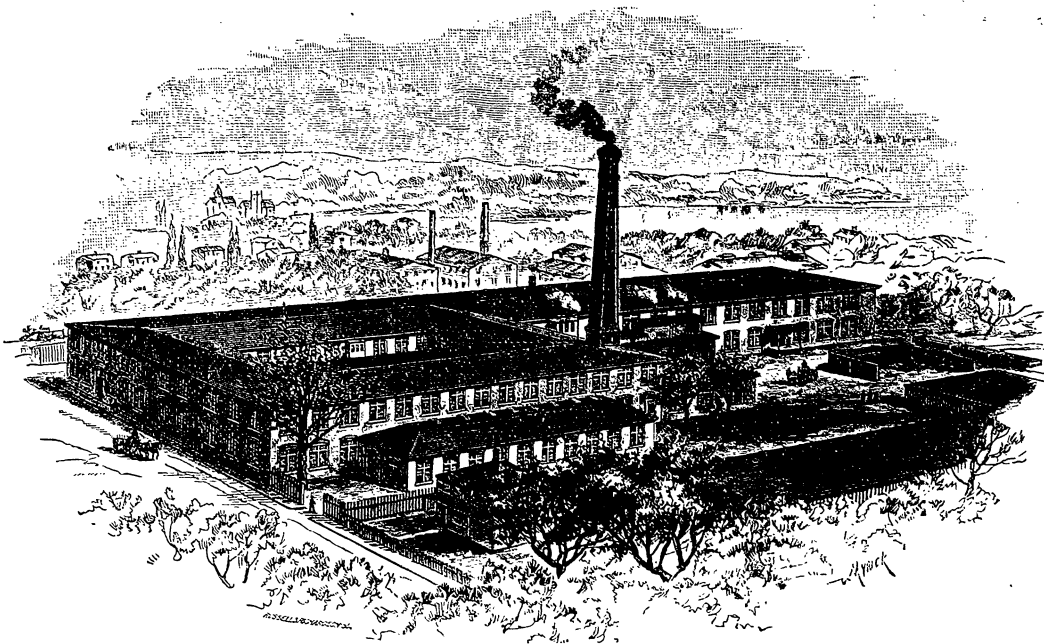
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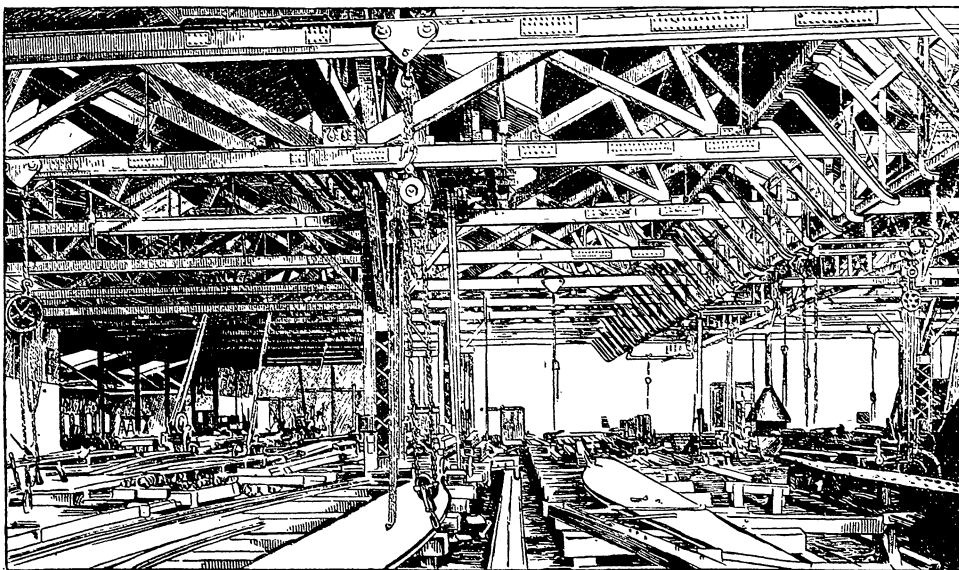
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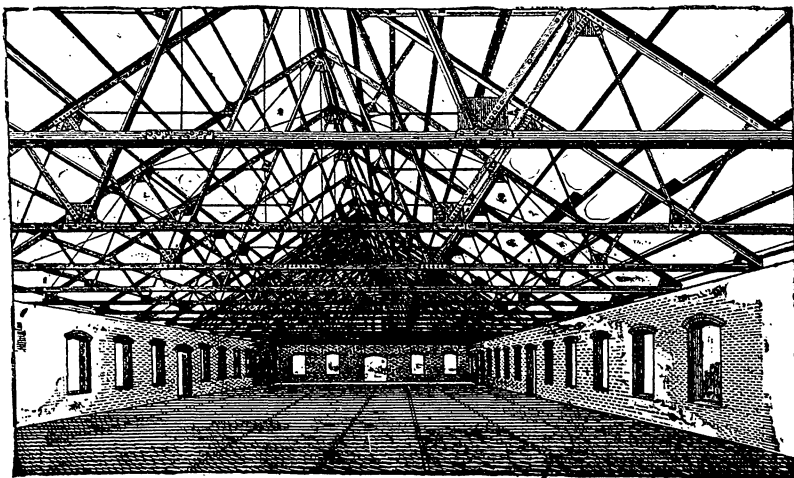
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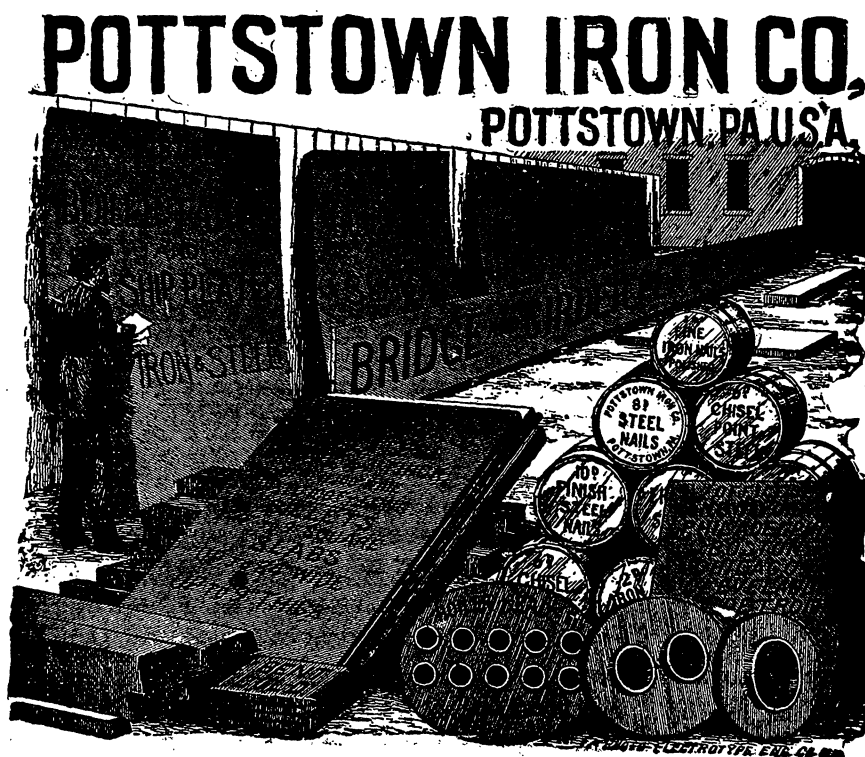
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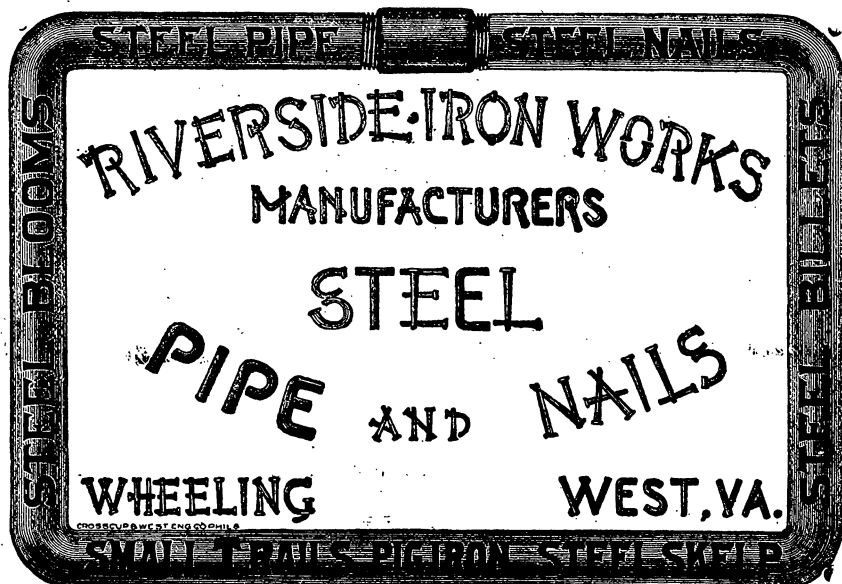
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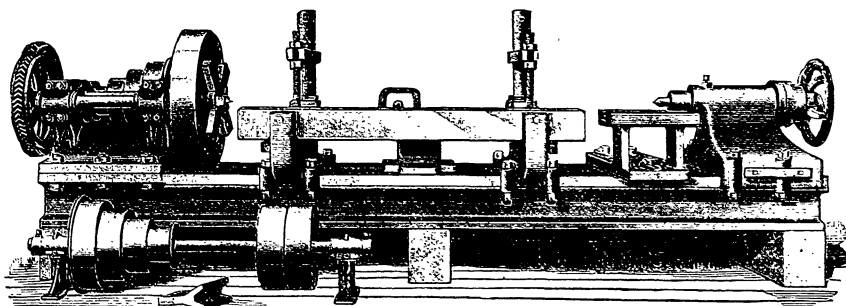
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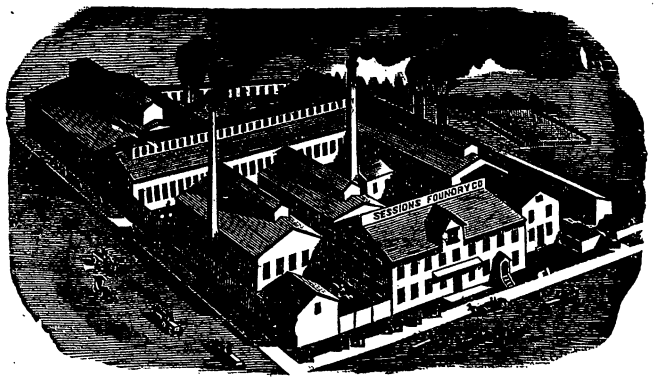
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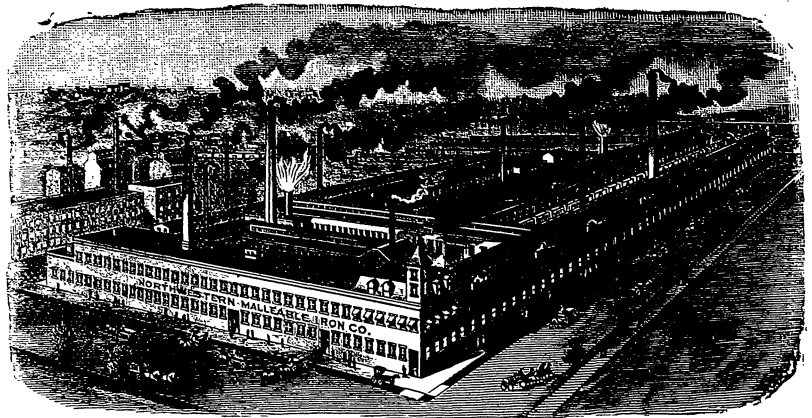
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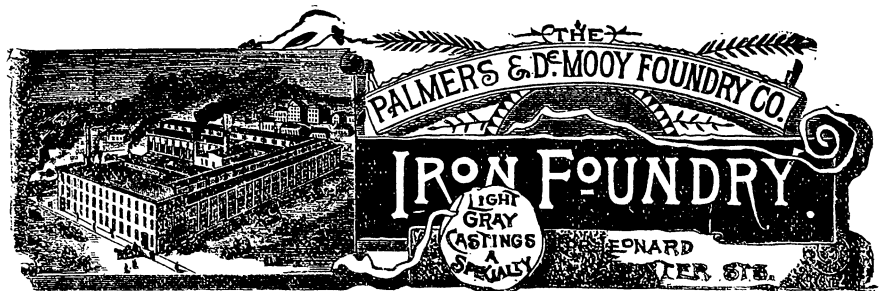
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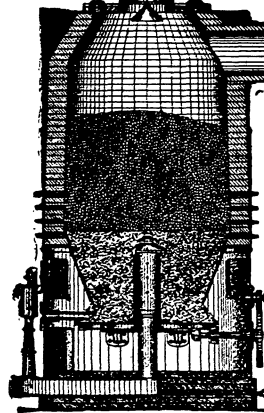
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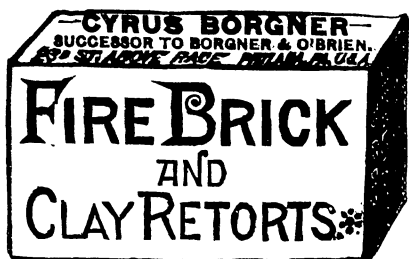
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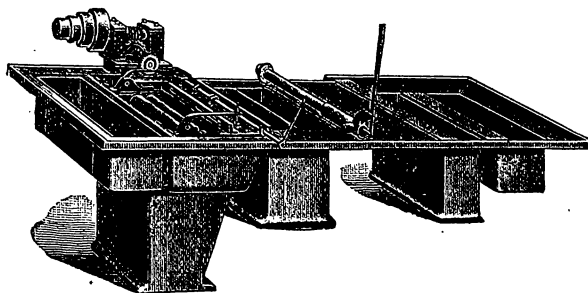
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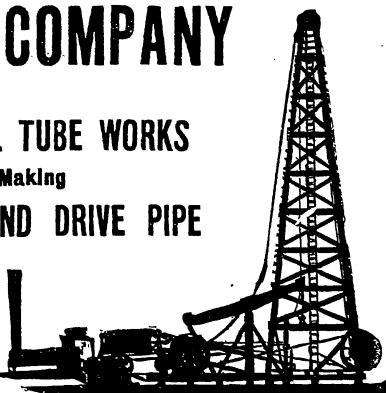
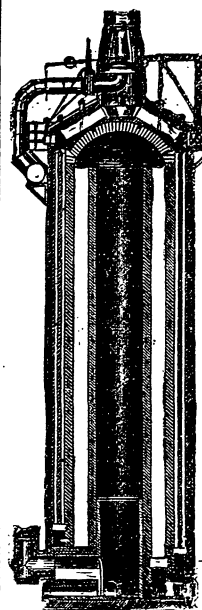
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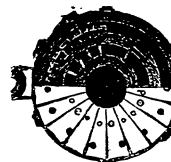
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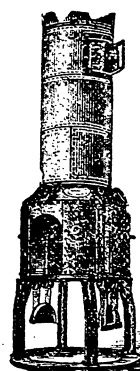
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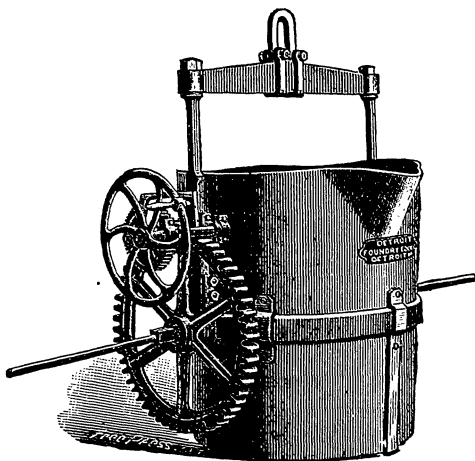
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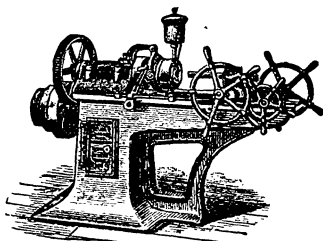
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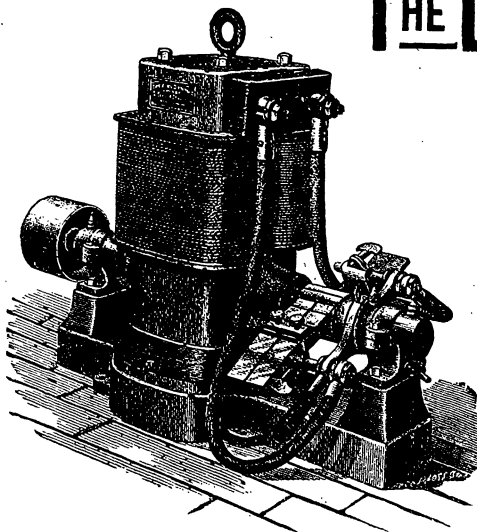
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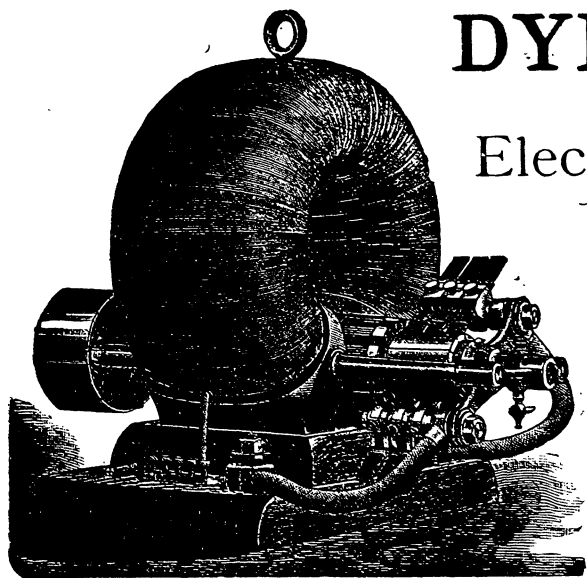
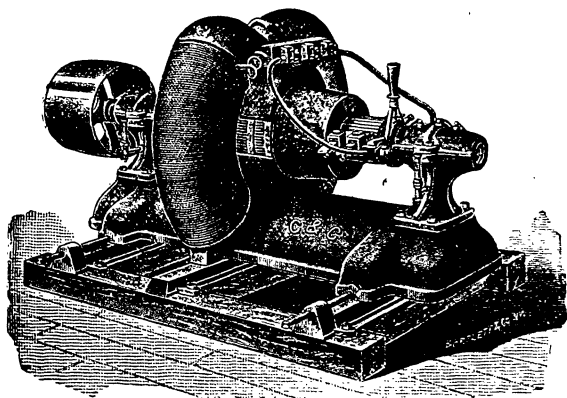
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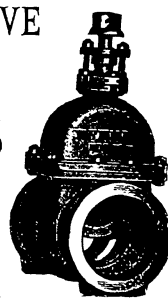
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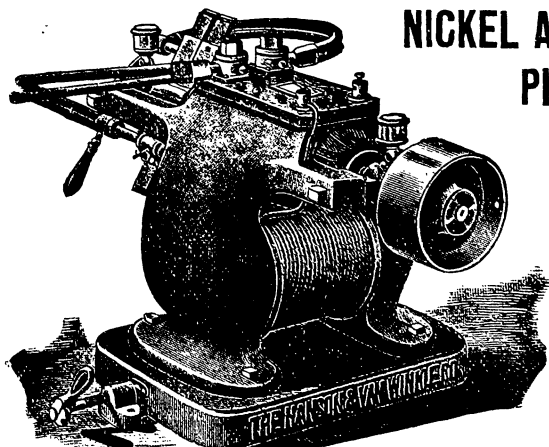
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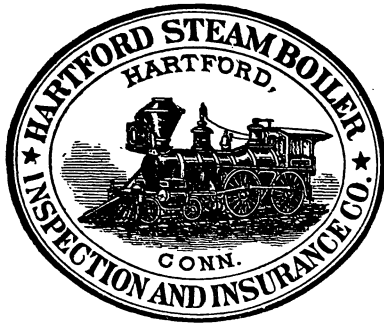
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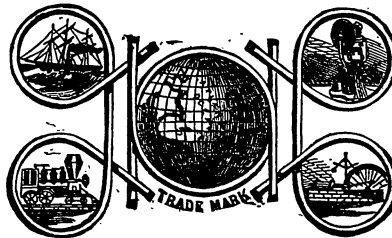
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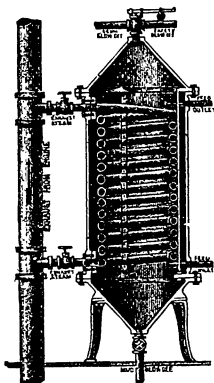


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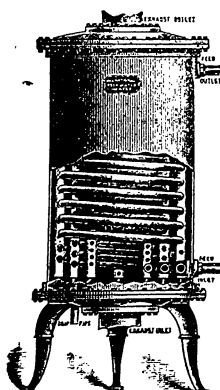
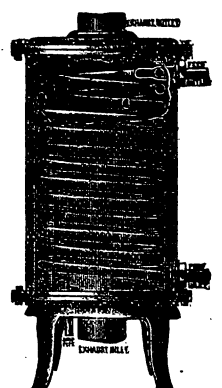
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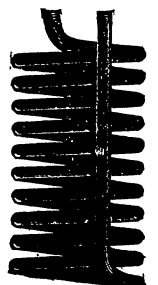


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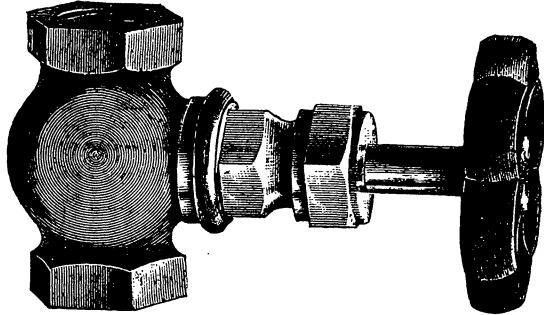
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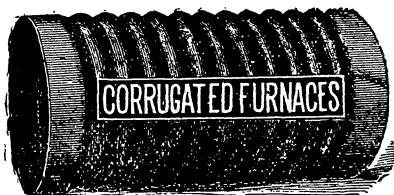
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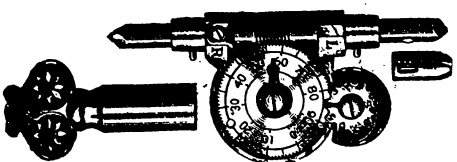
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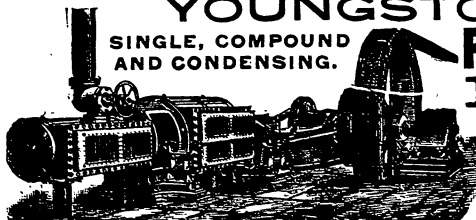
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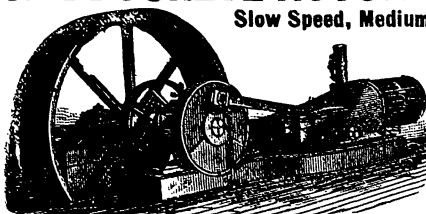
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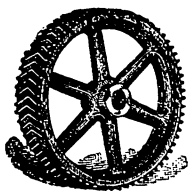
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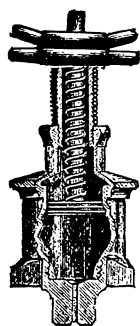
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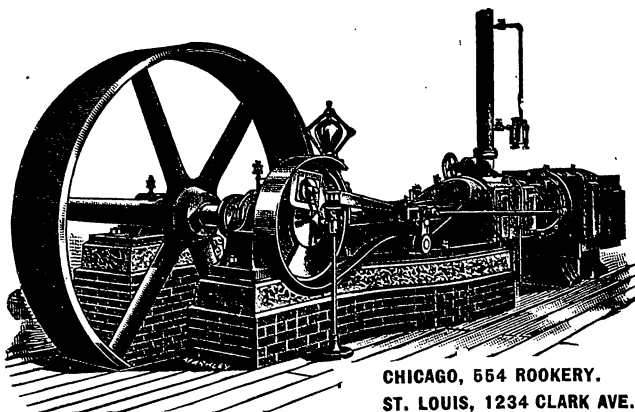
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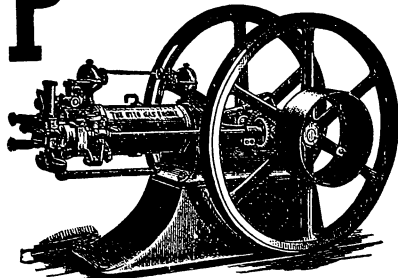
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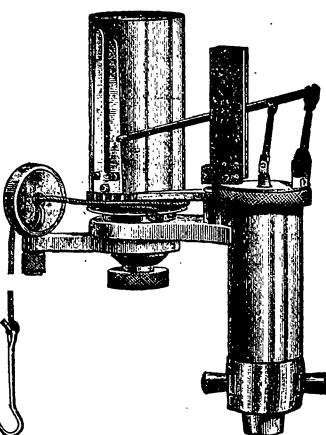
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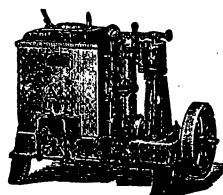
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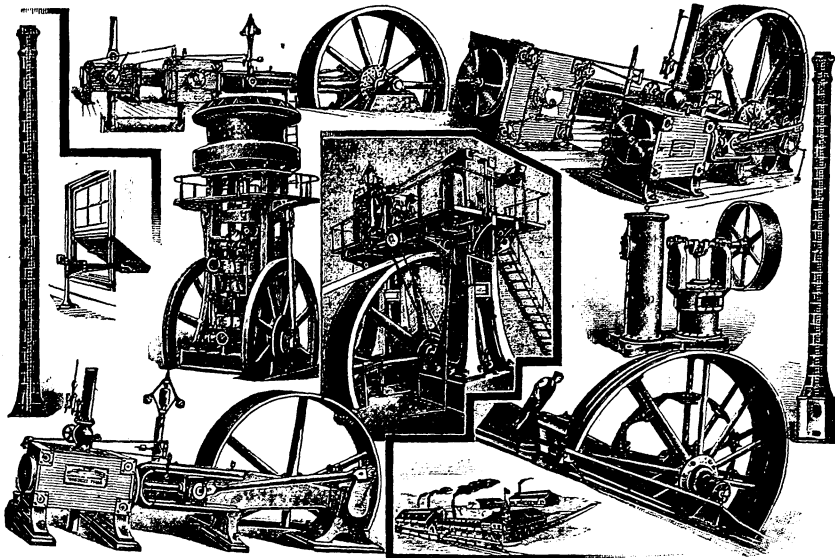
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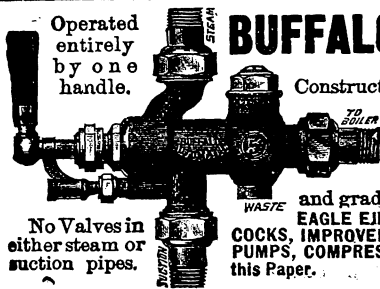
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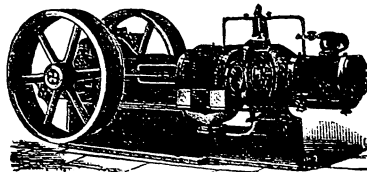


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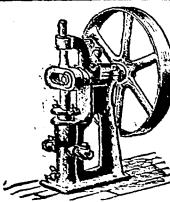
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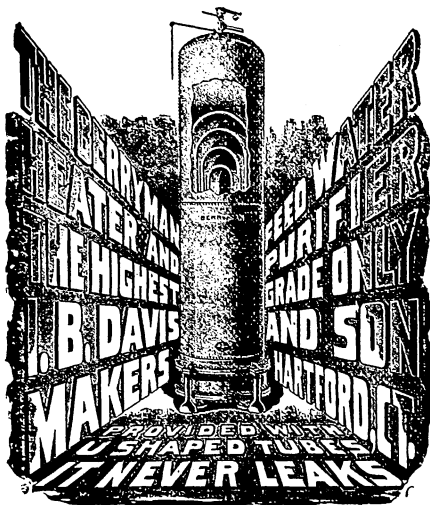


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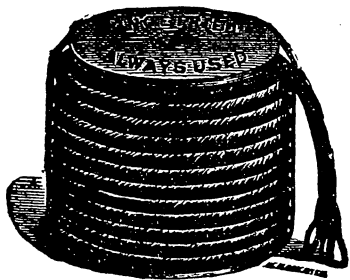
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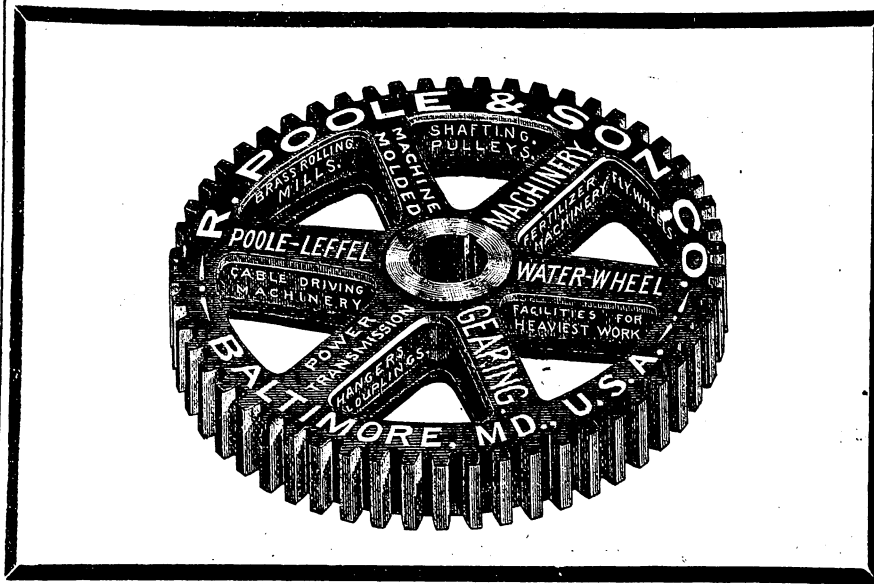
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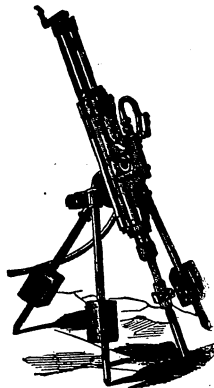
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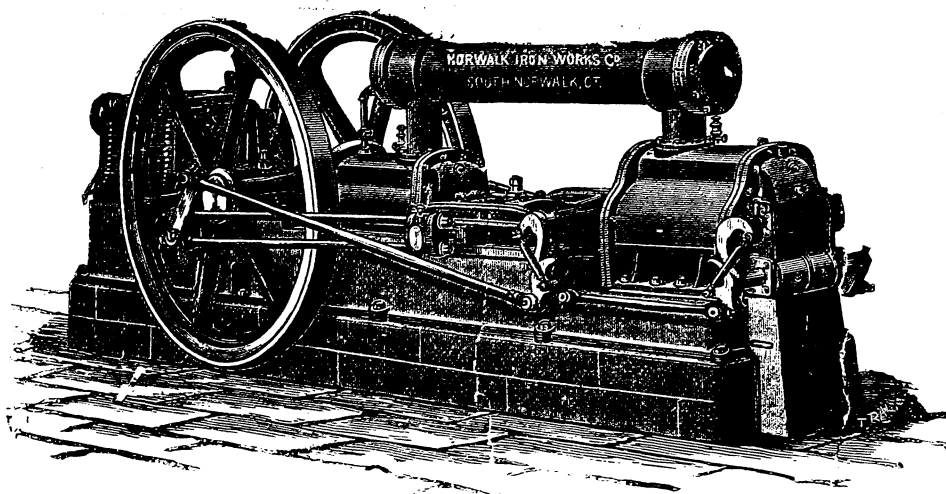
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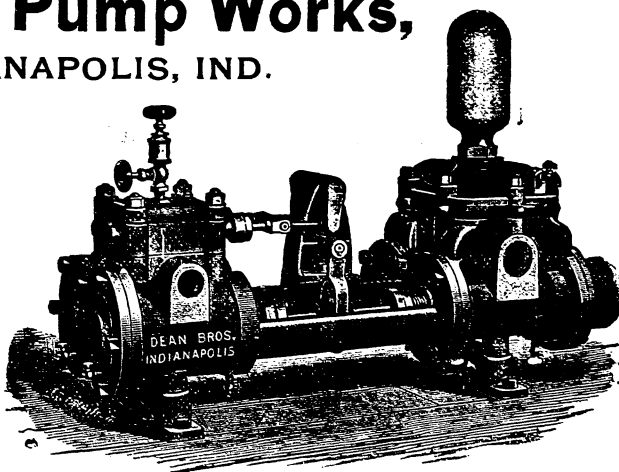
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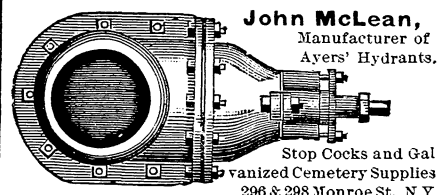
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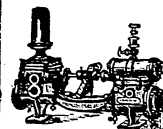


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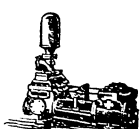
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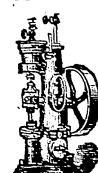
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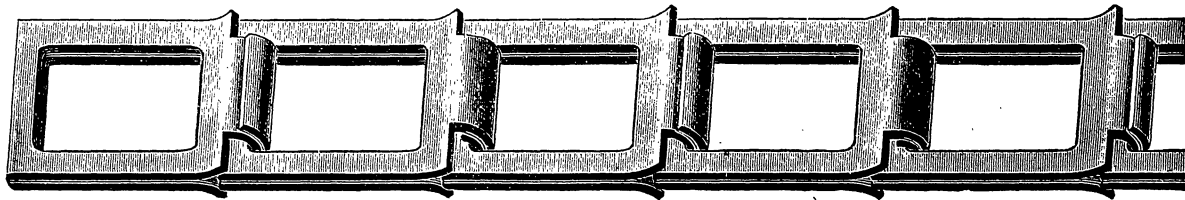
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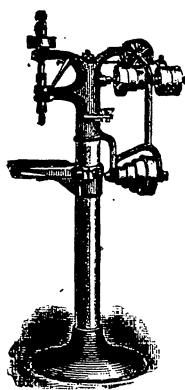
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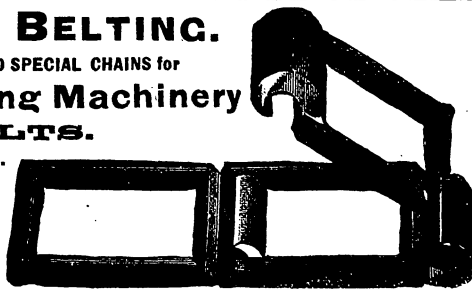
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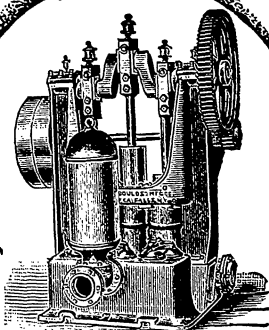
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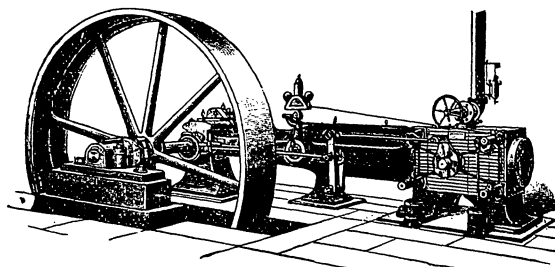
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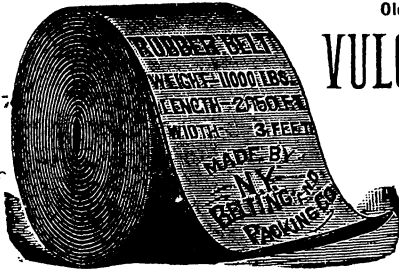
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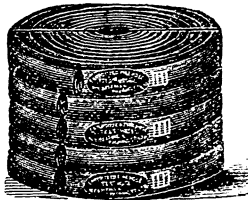
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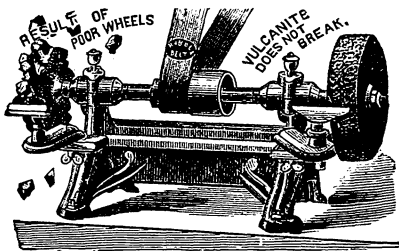
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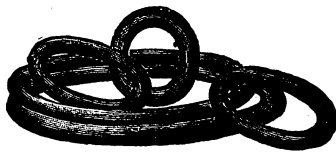
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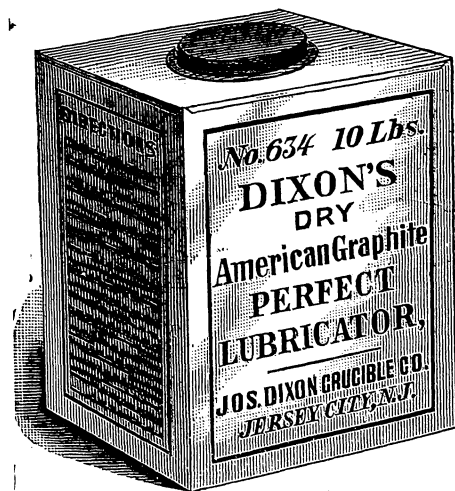
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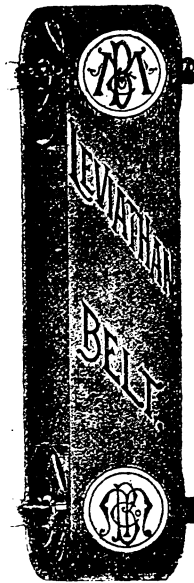
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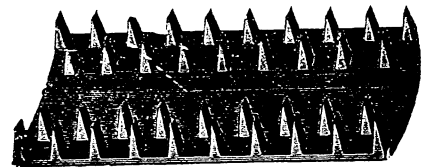
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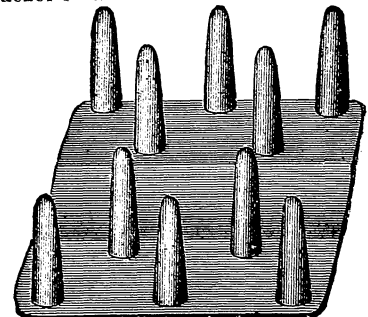
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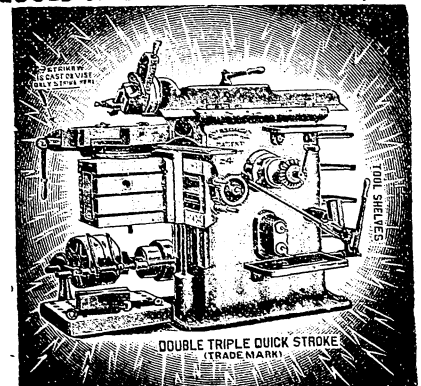
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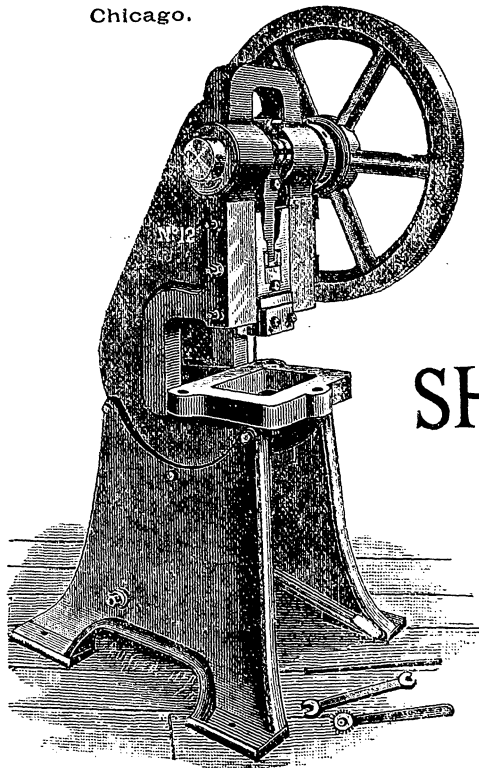


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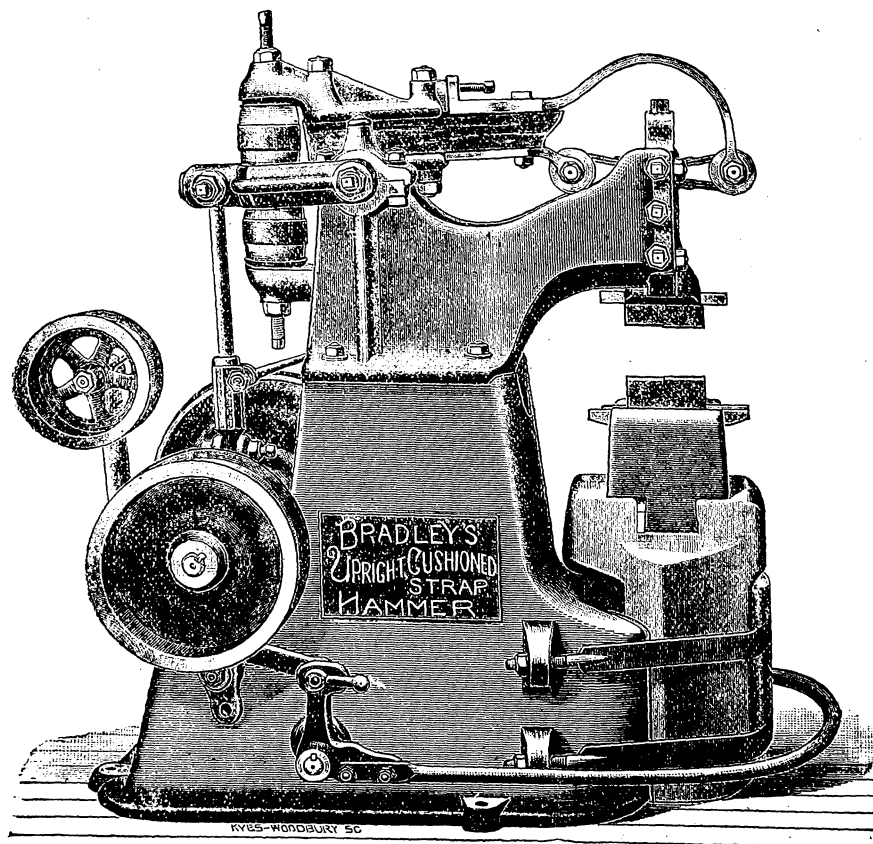
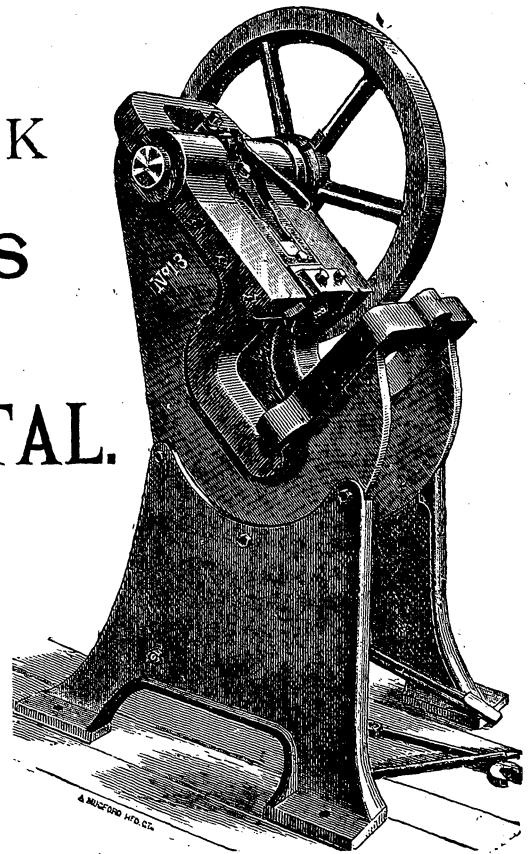
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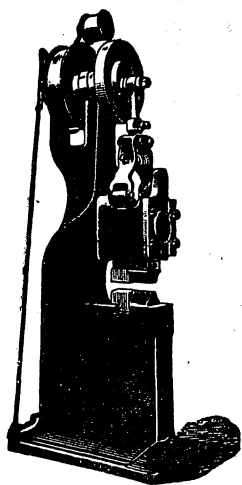
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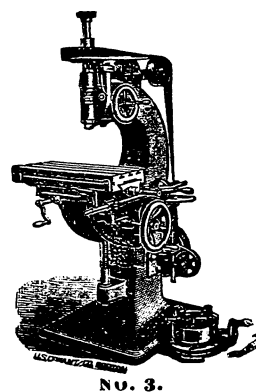
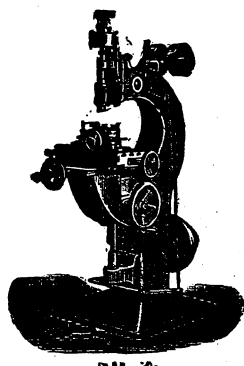
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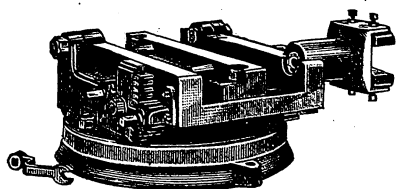
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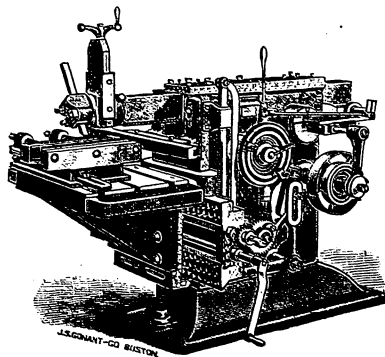
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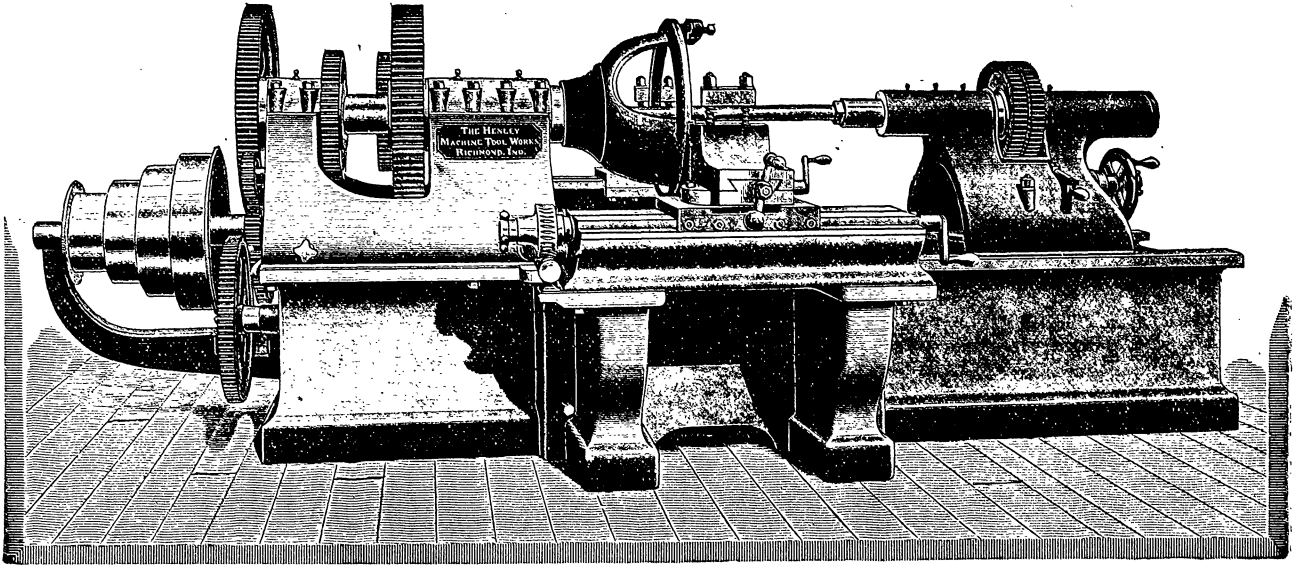
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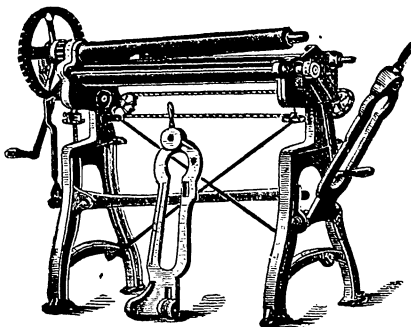
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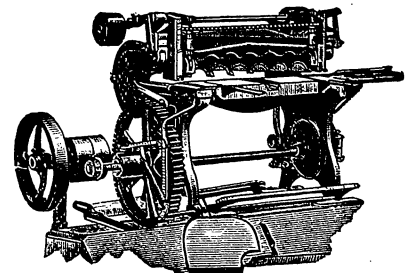
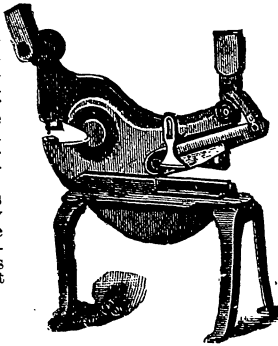
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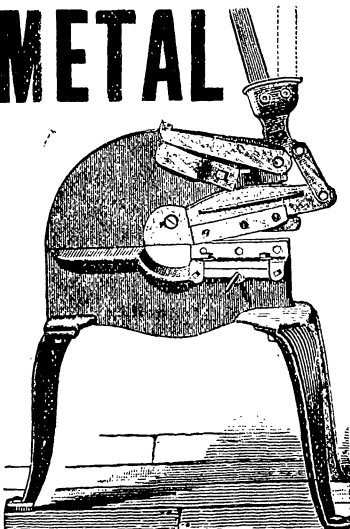
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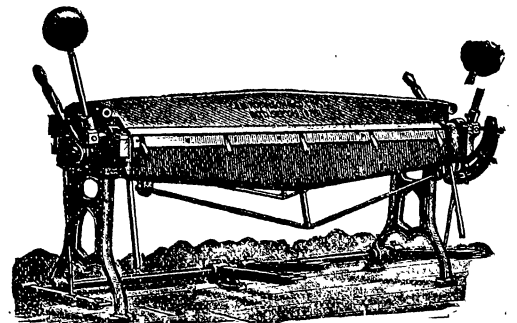


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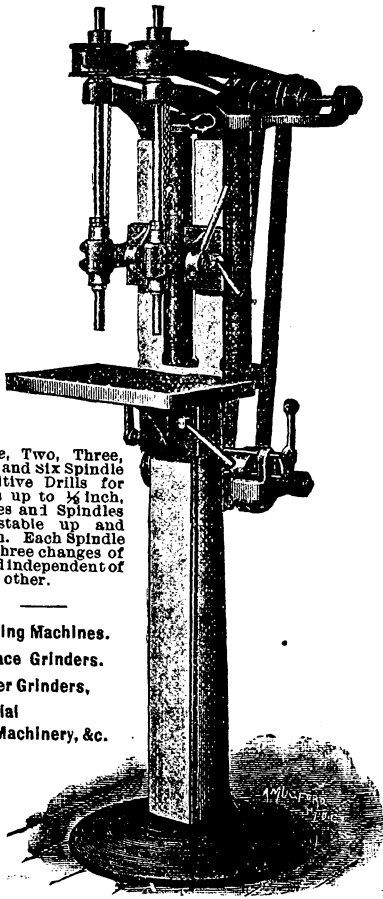
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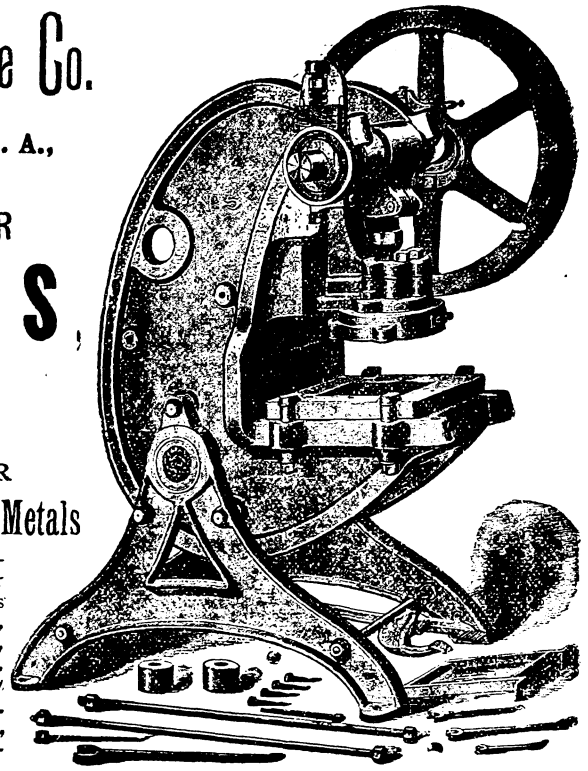
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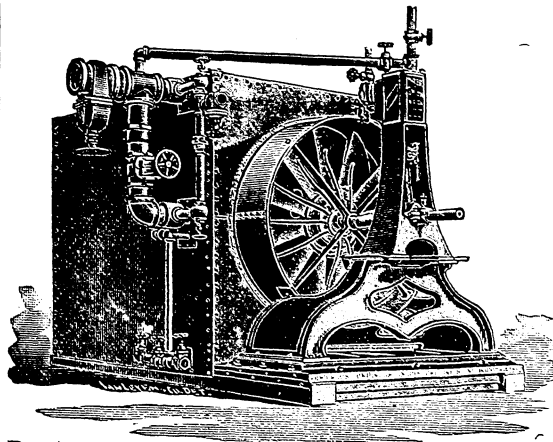
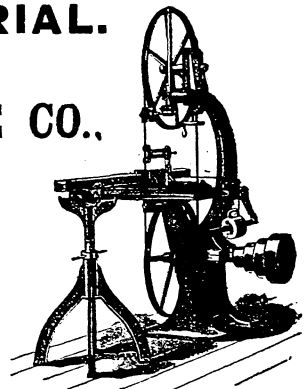
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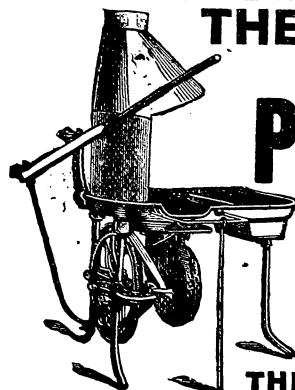
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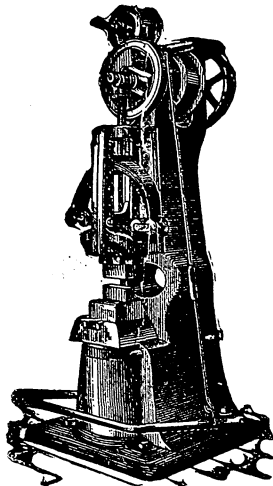
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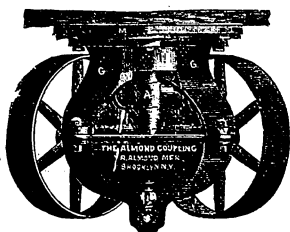
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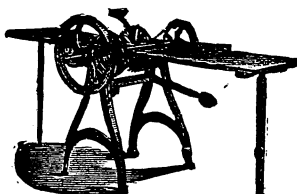


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It is a noiseless quarter-turn countershaft, self-contained, perfectly lubricated, and gives no trouble. Send for particulars.

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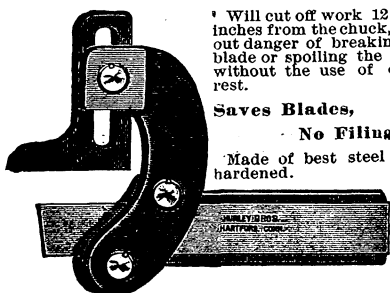


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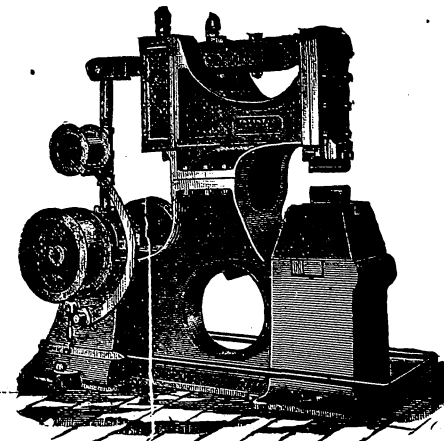
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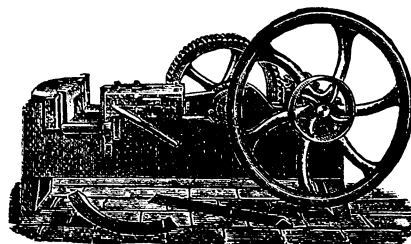
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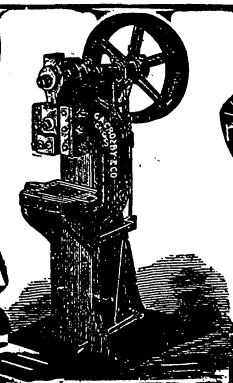
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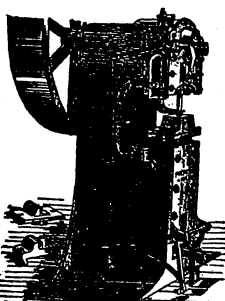
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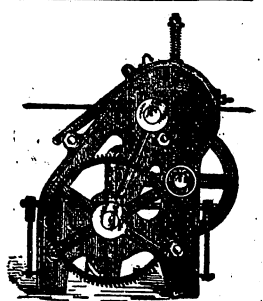
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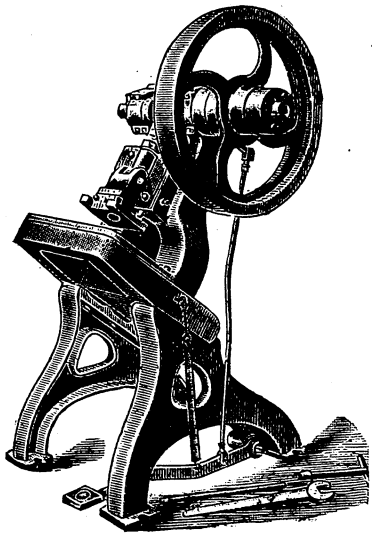
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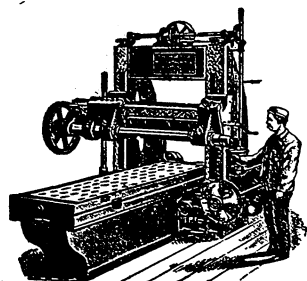
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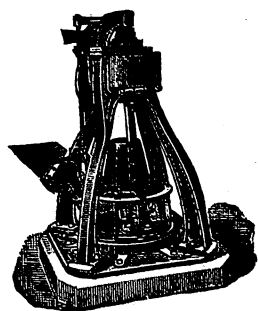
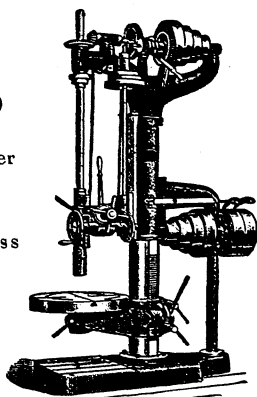
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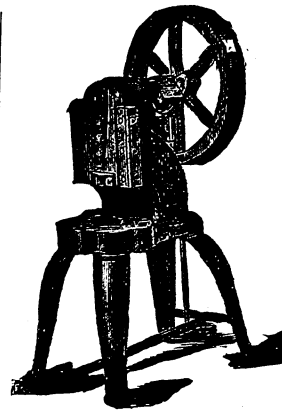


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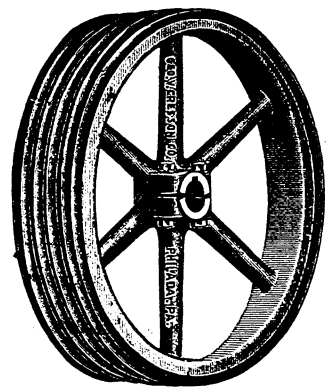
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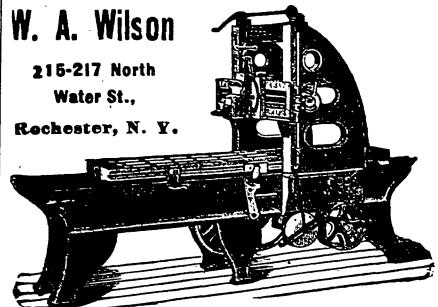
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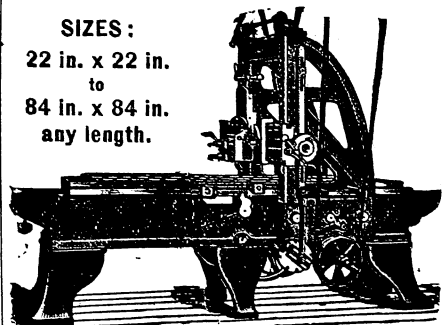


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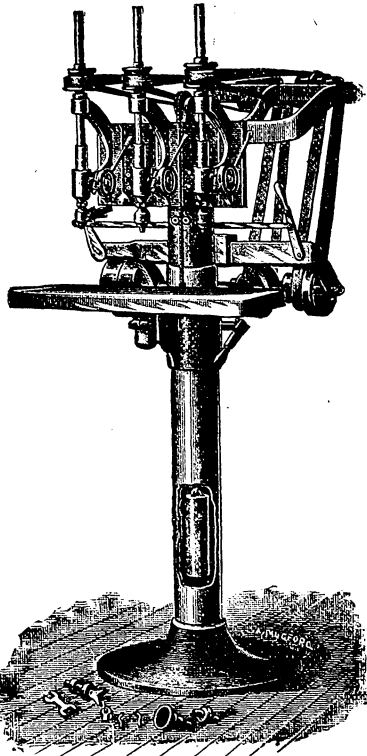
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to  
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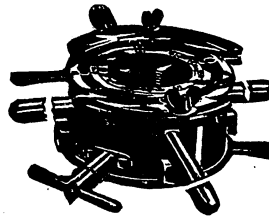
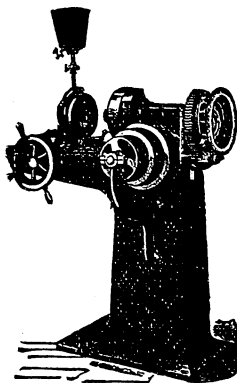
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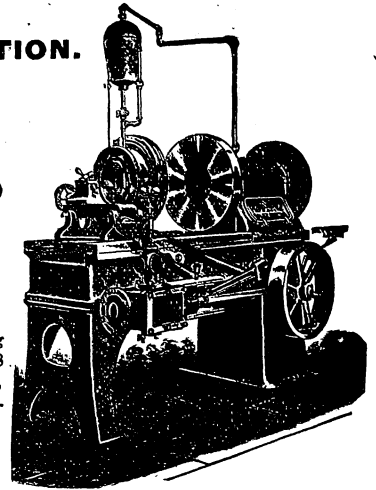
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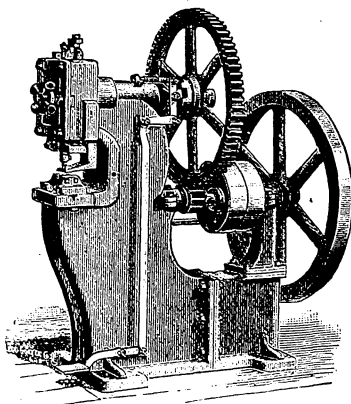


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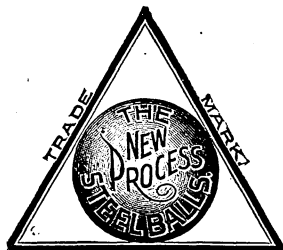
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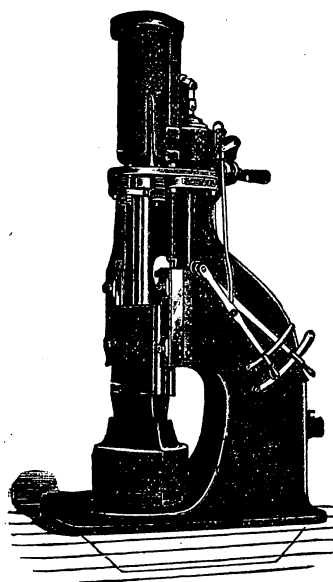
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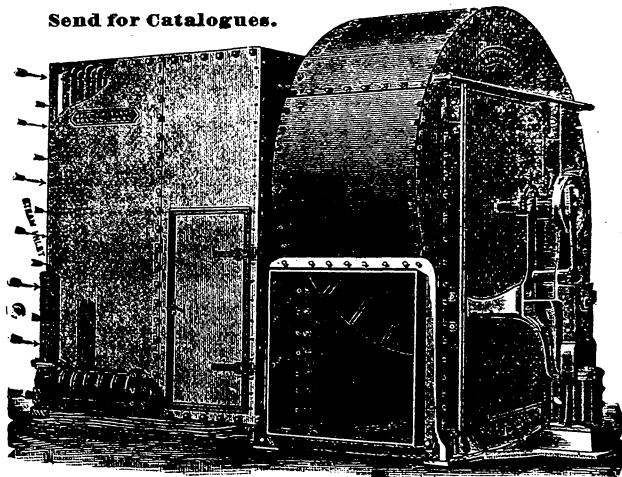
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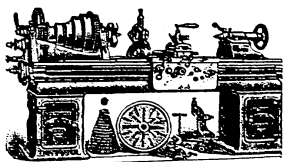
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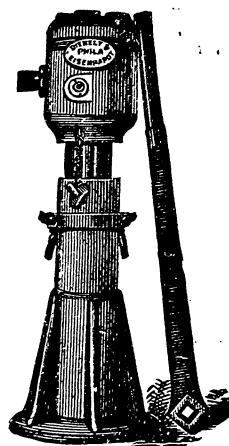
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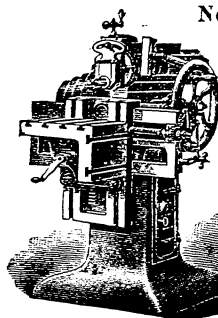
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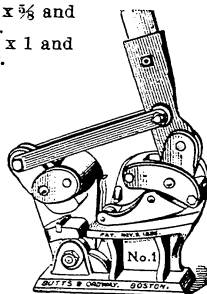
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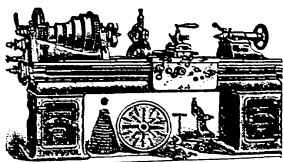
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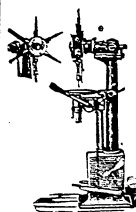
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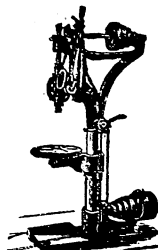
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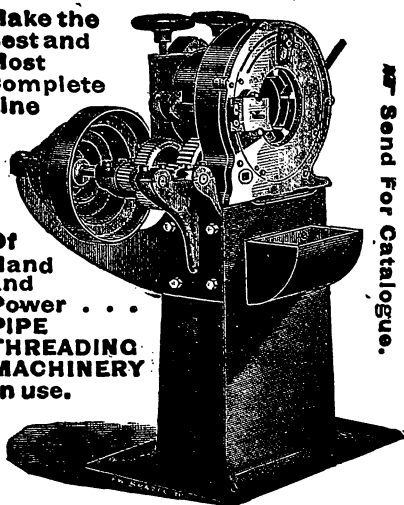


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Cuts off any size  
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Up to 4½  
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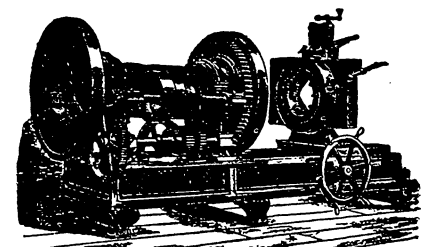
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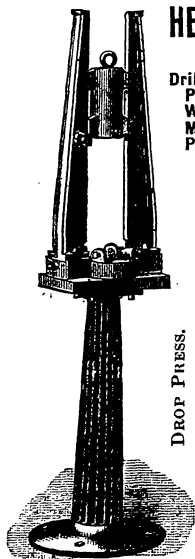
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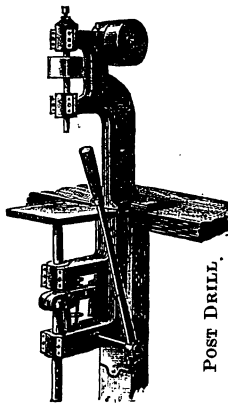
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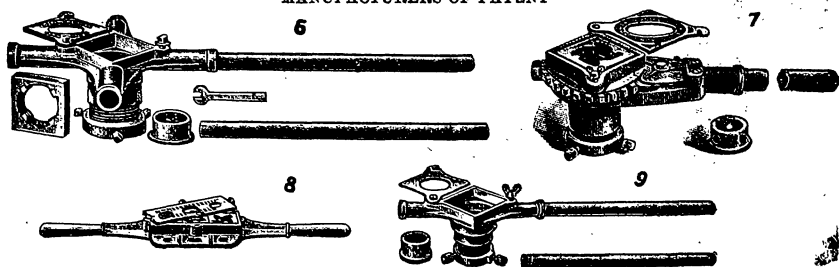
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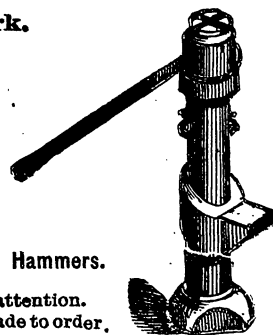
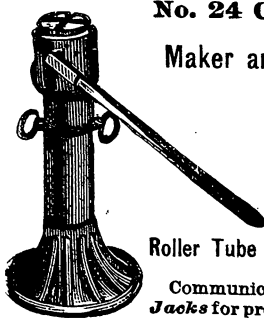
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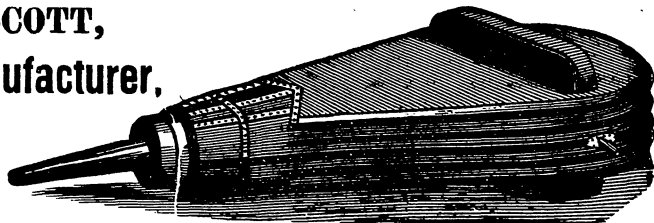
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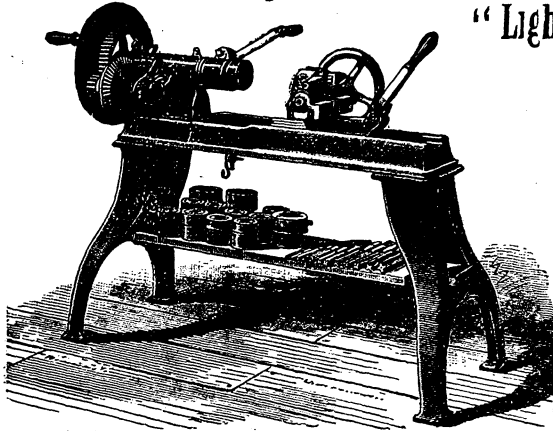
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Before it becomes dull from use it will cut as many perfect threads as the best solid die extant, and when it is dull, you don't throw it away and buy a new one—Oh, no! You simply sharpen the cutters on a common grindstone, and so make it practically as good as it was at first, and this sharpening process may be repeated a number of times.

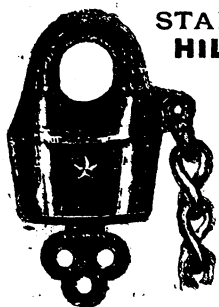
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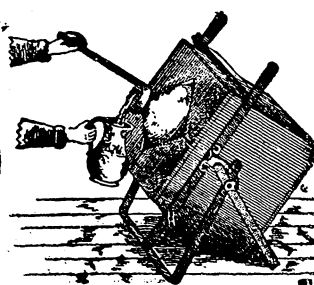
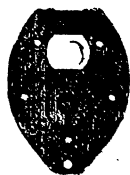


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Weight, 120 Pounds.

Drills from 0 to  $1\frac{1}{4}$  inch hole and to centre of a 15-inch circle. The Crank has Two True and Honest Speeds that can be shifted from shaft A to shaft B (or balance wheel shaft), precisely like all high-grade and high-priced drills, and not a blind imitation of a double speed drill made with a wooden handle riveted on the rim of the fly wheel, at a cost of just  $2\frac{1}{2}$  cents, necessitating the blacksmith to have a helper, or turn the drill with the Left Hand, as one man operating must face the drill to do the work, giving one hand for motion and the other for guiding and handling the work. By referring to illustration it will be seen that the Gears on this Drill are all provided with Two Journal Bearings, one on each side, this being the most important feature to make a drill strong and powerful, and just where all cheap-made Drills are weak, as their main driving gear revolves on a simple stud, cheaply screwed into the weakest part of the backbone, which is not only cheap and flimsy in construction, but not practical, which none know better than the intelligent mechanic. Our Catalogue illustrates Five Heavier Drills equally as cheap as the above.



### Champion 1890 Lever Blower

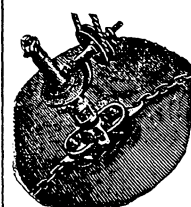
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The 1890 is the only Double Geared Blower made. It will produce one-third more blast with 20 strokes per minute, than any other Lever Blower will produce with 30 strokes per minute, a labor saving of 600 strokes per hour, or 6000 strokes per day of 10 hours steady work. It works easy and noiseless. At a trial test a little girl six years old easily furnished the blast to put a welding heat on a 4-inch iron. Dimensions of 1890 Blower: Fan, 16 inches; Wheel, 25 inches in diameter.

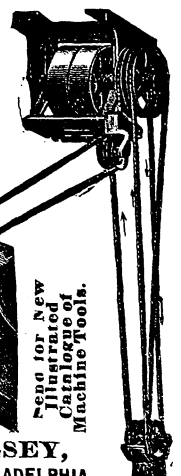
All our Champion Lever Blowers and Forges are supplied with our World Renowned Champion Lever Motion with a record of eight years' constant use, and without a single repair to our knowledge, and is now on more than 55,000 Blowers and Forges in every day use.

## CHAMPION BLOWER & FORGE CO.

Lancaster, Pa., U. S. A.



Portable Drill, as applied to drilling the shells of boilers.



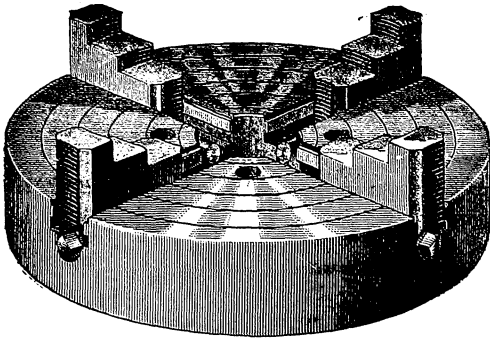
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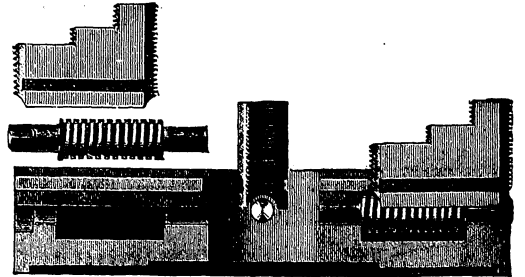


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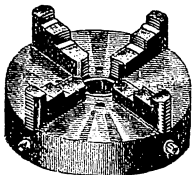
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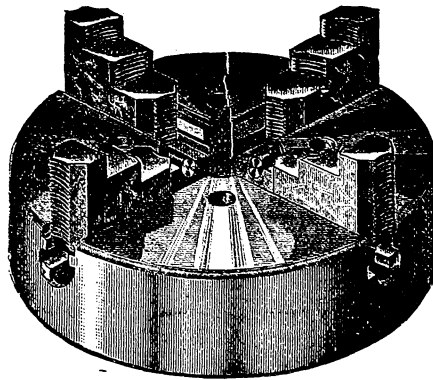
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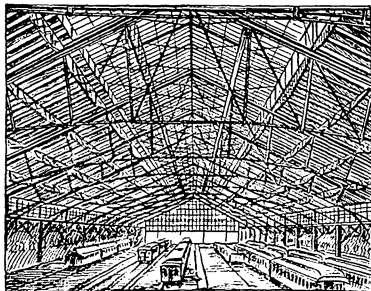
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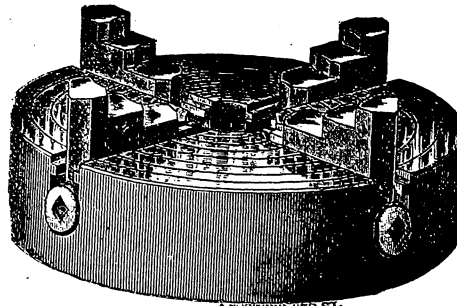
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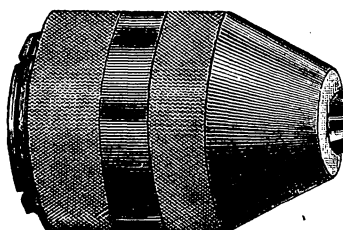


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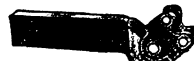
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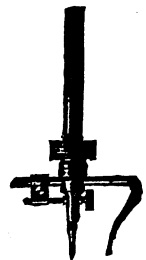
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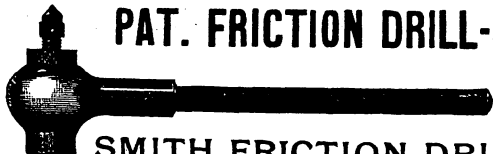
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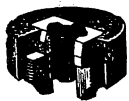
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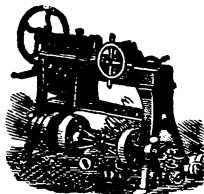


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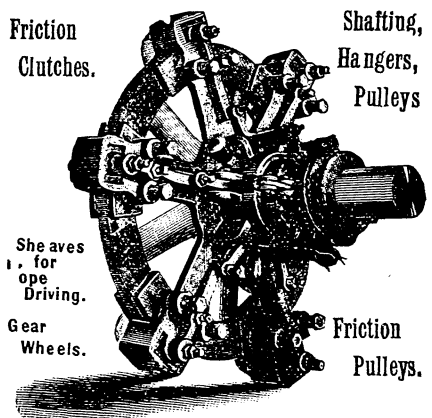
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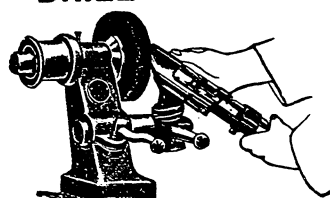
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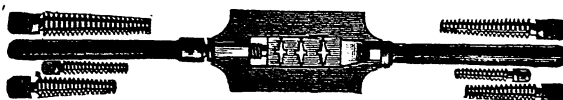
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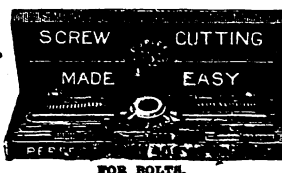
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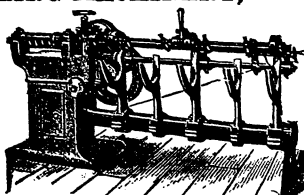
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MACHINERY,

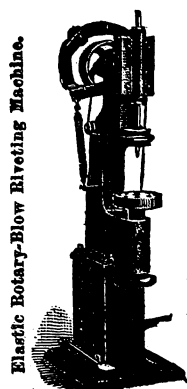
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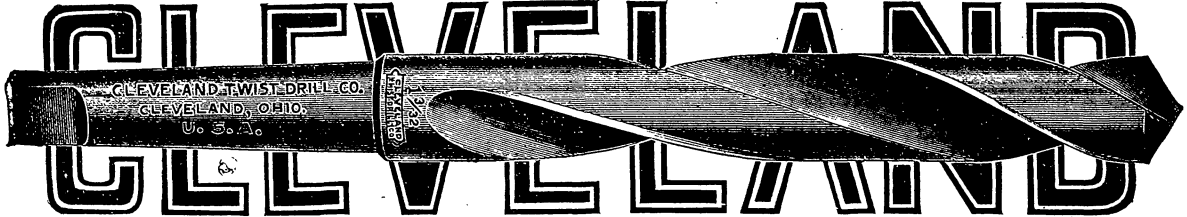
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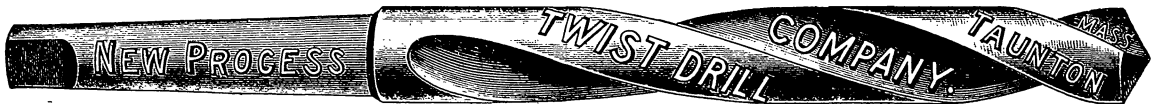
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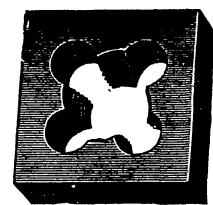
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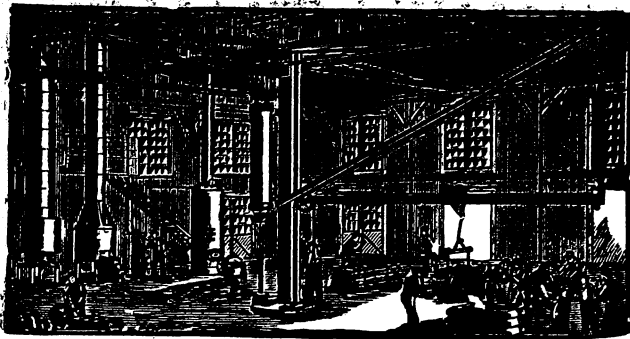


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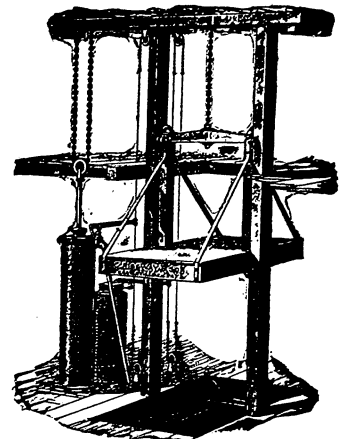


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TO THE EDITOR OF THE IRON TRADE REVIEW:

Enclosed find clipping from the Sharon, Pa., *Telegraph*, of June 24, giving an account of an accident at our works which *fearfully* demonstrates "The Unexpected in the Foundry." A sixty-ton heat was in progress of being run off and at the second lifting of the crane ladle, the hoisting chain parted and let the ladle drop five feet, striking the side of the cupola's ladle pit, and throwing the metal over the body of George Miser. Though almost enveloped by seething fluid iron, he retained his senses, and while attempting to crawl out of the metal was grasped by two men, who were horrified to find his skin come off at every touch. The unfortunate man lived three hours. It is the first serious accident I have had under my management of heavy work, for 24 years in the foundry. It took two and a half hours to resume melting, and after running down what iron remained in the cupola, the bottom was dropped. The chain which broke was best English make, and tested to lift 20 tons with safety. Its load at the time of the accident was about five tons. This suggests the query, *Why do chains generally break with the lighter loads?* This, I think, is the experience of others as well as myself. Yours truly, THOS. D. WEST.

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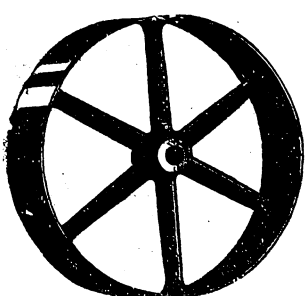
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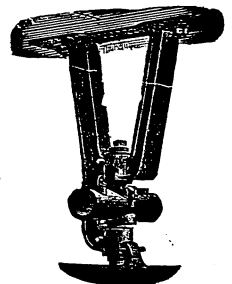
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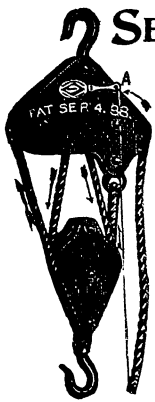
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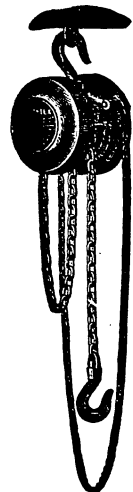
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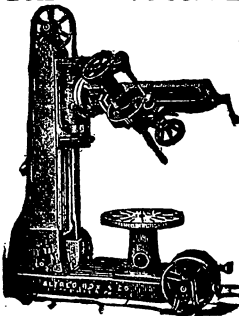
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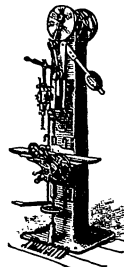
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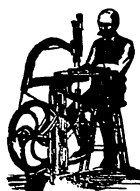
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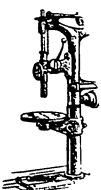
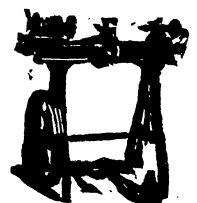
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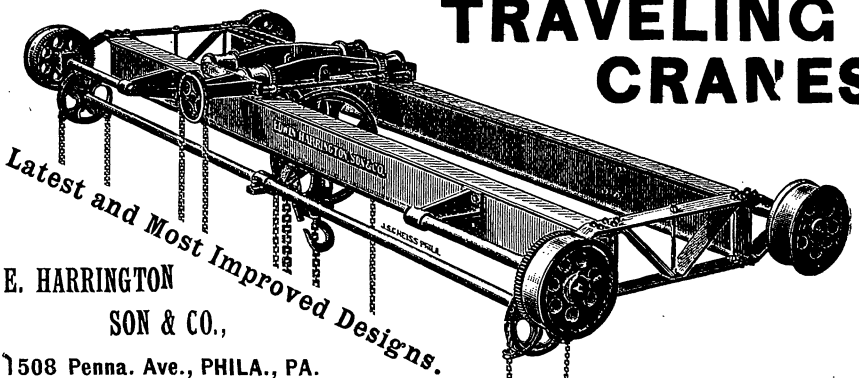


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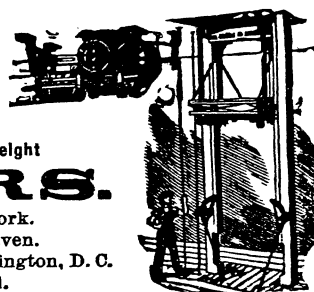
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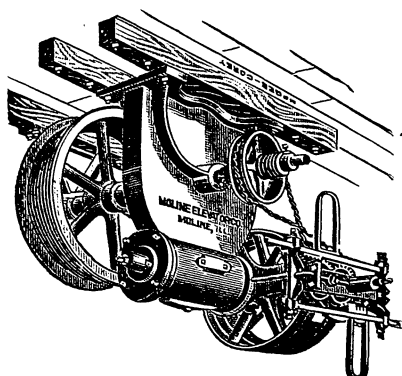
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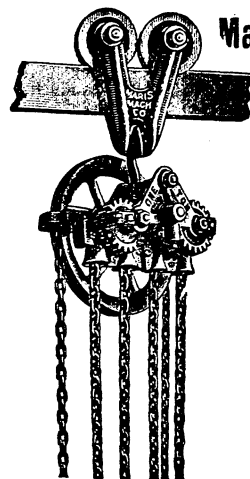
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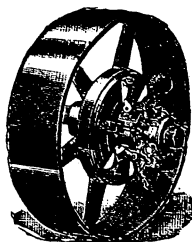
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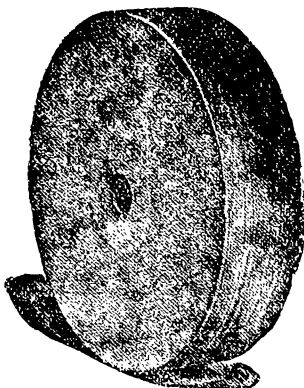
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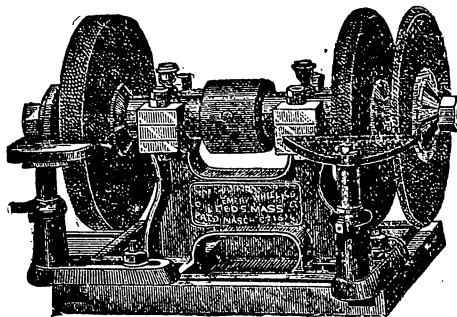
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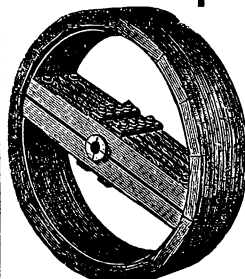
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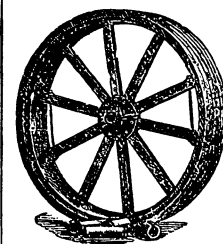
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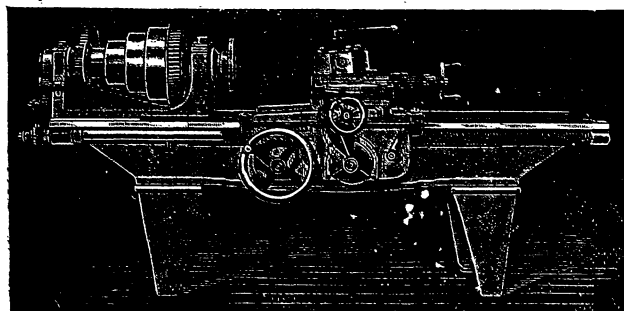
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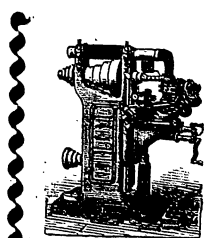
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Lincoln Millers Gang Drills, Screw Machines.  
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Four second-hand 75 H.-P. Double-Deck Boilers, with all fittings and fixtures. In first-class condition. Cheap.  
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Having purchased the Auburn Manufacturing Company's plant, with greater facilities for manufacturing carriage forgings, which my increasing trade demands, I offer my former plant for sale or rent, which consists of two-story stone and wood building, 60 x 30, and three-story stone and brick building, 75 x 40. Also forge shop, 22-ft. posts, 150 x 54, with large double windows between each bent. 50 x 30 boiler house. Splendid water power, 11 ft. head.  
One 64-in. American Turbine.  
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200 ft. 2¼ Cold Rolled Iron Shafting.  
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50 Cast Iron Lamp Posts, fancy.  
800 ft. Wrought Iron Fence, 3 ft. high, scroll work.

150 Lathe Drip Pans for oil and turnings.  
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1 Pulley Grinding Machine.  
1 Rack for storing new iron.  
1 30-in. Cement Foundry Cupola.  
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Power Trip Hammers, lathes, Milling Machines. Prices to suit buyer.

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Splendid condition; low price; good value.

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Used but a short time.  
A splendid tool.  
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31 four-wheel, 5-ton Lime Cars, cheap. Address

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Nos. ¼, ½, 1, 6 and 7 Root's Pressure Blowers, in A1 order and cheap.  
Also 15 horse-power Greenfield Upright Engine, good as new.

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163 and 165 Washington St., New York.

# Assignee's Sale.

**ASSIGNEE'S SALE.**—The undersigned, Assignee of the Roelker Stove and Plow Co., of Evansville, Indiana, by order of the Superior Court of Vanderburgh County, Indiana, will, on the SIXTH DAY OF SEPTEMBER, 1893, on the premises of said company, on Main and Sycamore streets, between Fifth and Sixth streets, commencing at 10 o'clock a. m., and continuing until all said property is disposed of, sell all the real and personal property of said corporation, consisting of plows, stoves, castings, patterns, flasks, tinners' stock, raw material for the manufacture of stoves and plows; also all tools and machinery used in the manufactory. The above property will be sold for CASH.

The property to be sold is one of the best equipped plants for the manufacture of stoves and plows in the West. The buildings have been erected and machinery placed with especial reference to the business, and everything is in perfect condition to continue the business.

The Roelker Stove and Plow Co. is widely and favorably known and its stoves and plows are in great demand—a purchaser could not only purchase a thoroughly equipped plant, but could also secure the good will of a thoroughly advertised business of thirty-eight (38) years' active operation. The property will be sold at public auction to the highest bidder. If purchaser cannot be found for the entire plant, then it will be divided and sold in such quantity as may secure the best returns.

No better opportunity was ever offered for a profitable investment.

In the meantime propositions will be received for private sale of all or part of above described real estate, and also for either or both the stove and plow manufacturing business, with all its manufactured stock, raw material, patterns, machinery, tools, &c., connected with the above-named business. Address

JOHN H. POLSDORFER,

Assignee,

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10,000 tons Mill and 54 per cent metal-lic iron; Philadelphia Delivery.  
200 tons Burnt Cast Iron Scrap.  
200 tons Light Wrought Scrap.  
100 tons Old Boiler Iron, cut at rivets.  
50 tons 1-in. thick Flat Wrought Iron Plates, 4 ft. x 15 ft.  
Inquiries for iron and Steel Scrap solicited.  
ALSO FOR SALE:  
One 250 H.-P. Horizontal Engine, 22 in. x 60 in.  
One 300 H.-P. Double Exp. Engine, 16 in. x 32 in.  
One 24 in. x 60 in. Horizontal Engine.  
Four 50 H.-P. Porter-Allen High Speed Engines.  
For particulars and low offerings address  
G. W. SCHULTZ & CO.,  
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# \$5000

will secure one-third interest in a manufacturing business, requiring less than one-half the capital and room necessary to make any other line of the class in the world, and the goods much superior and well introduced; orders on hand; large profits and ready sale. Millions paid annually in the United States for this class of goods. Parties acquainted with builders' hardware preferred; can have the position of secretary and treasurer. Address

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Nice clean stock of Hardware, Paints, Oils, Glass, &c.; one of the best locations in Indianapolis, Ind. Will invoice about \$6000; could be reduced in short time. Will sell at a bargain. Address

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J. THORBURN ROSS, Sec.

Reference: National Park Bank, New York.

## AUDITOR'S NOTICE.

Assigned Estate of the Bristol Rolling Mill Company.

The undersigned Auditor, appointed by the Court of Common Pleas of Bucks County for the purpose of passing upon the exceptions to the account of, and making distribution of the fund in the hands of A. Weir Gillespie, Assignee in trust for the benefit of the creditors of The Bristol Rolling Mill Company, hereby gives notice that he will meet all parties interested at his office, in the borough of Doylestown, Pa., on Thursday, the 3d day of August, A.D. 1893, at 10 o'clock a. m., for the purpose of attending to the duties of his appointment. Creditors will please send statements of their claims to the undersigned.

HENRY O. HARRIS, Auditor,  
Doylestown, Pa.

## FOR SALE.

Two Tubular Boilers, 48 in. diameter, 16 ft. long, with fronts, grate bars and fittings complete. Also one Double Deck Tubular Boiler, without settings. All guaranteed for 90 lbs. steam. Apply to

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Responsible parties to manufacture and sell on royalty, a cheap portable steel or iron CULVERT BRIDGE; it is adapted to all small streams, runs, etc., in roads, streets, RAILROADS, etc.; improved roads is the order of the day; use this bridge, put it below the level of the road, cover it over and thus prevent jarring and wear and tear of vehicles, etc. Apply to

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A machine to perforate tin sheets for IC and IX tin, 14 in. x 20 in. or longer, perforating round holes from No. 1 to No. 7 inclusive. We will receive bids for a machine of the latest improved style, to perforate and finish such sheets. Or would like to hear from a man who can make such improved machine and can run the same. Address "PERFORATING," office of *The Iron Age*, 96-102 Reade St., N. Y.

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To furnish reasonable estimates on specialties in light metal work.  
CLARK & CO WEEES, Plainville, Conn.,  
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Located in a prominent Western city and adapted to the manufacture of bicycles of any grade. Capital required, \$75,000 to \$100,000. Good orders for season of 1894 assured. For particulars apply to

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Fine Hardware, Stove, Tinware and Plumbing Business.

In a growing Western town; doing a first-class retail and jobbing business. Stock with inventory about \$35,000. A rare chance, as present owners have been liberal advertisers. Only those who mean business need apply. Address "M. & M.," office of *The Iron Age*, 96-102 Reade St., N. Y.

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Successors to

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13 in.

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17 "

20 "

22 "

ANY LENGTH  
OF BED.

Draper Machine Tool Co.,

Successors to

LATHE & MORSE TOOL CO.,

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## BLOWING ENGINE FOR SALE

Vertical pattern, with balanced steam slide valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in. 1 to 100 strokes per minute; engine new.

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## FOR SALE. Ten Steam Yachts.

Now in use carrying passengers at the World's Fair, Chicago. Will sell and contract to deliver them afloat in any waters of the U. S., after close of the fair, November 1st; two for immediate delivery. Licensed to carry 75 passengers each. The chance of a lifetime for anybody wanting a steam yacht.

CHAS. P. WILLARD & CO.,  
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*Undisplayed Advertisements for  
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**A** MAN now occupying similar position would like situation as resident Manager or Superintendent; country preferred; is familiar with steam and water power, general machinery and management of help; large salary not so much an object as permanent, healthful location; best references as to ability and integrity. Address HENRY W. SCHOFIELD, office of *The Iron Age*, 96-102 Reade St., N. Y.

**A** S A ROLLER on a 16-inch mill; can furnish recommendations for the last 14 years. Address H. MURPHY, 639 Market St., Newark, N. J.

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**BY** A BUSINESS MAN of 37, a resident of Chicago, a position as Representative or Selling Agent in that city and through the Northwest for steel, iron and tin plate product; has had considerable experience in securing large contracts and is right in touch with the best trade; can give either Eastern or Western references. "C. M. P.," P. O. Box 3254, New York.

**A** S MANAGER or General Financier and Correspondent with large manufacturing company or wholesale hardware house; I have more than ordinary executive ability; experience covers a period of 18 years; at present hold a position of treasurer and general manager of a manufacturing company, but desire to improve my position; rapid at dictation and capable of handling a large mail, only a position where faithful and efficient service is required will be considered; unquestionable references and bond. "H. S.," office of *The Iron Age*, 96-112 Reade St., New York.

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**A** S FOUNDRY FOREMAN: am well up in all foundry practice; have had large experience in the handling of men; am strictly temperate; references present employers. Address Box 100, Leeds Station, Sioux City, Iowa.

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words One Dollar each insertion.  
Additional words two cents each.*

**F**OREMAN for iron foundry making machinery and heavy castings. Address "FOUNDRY," office of *The Iron Age*, 509-510 Hamilton Building, Pittsburgh, Pa.

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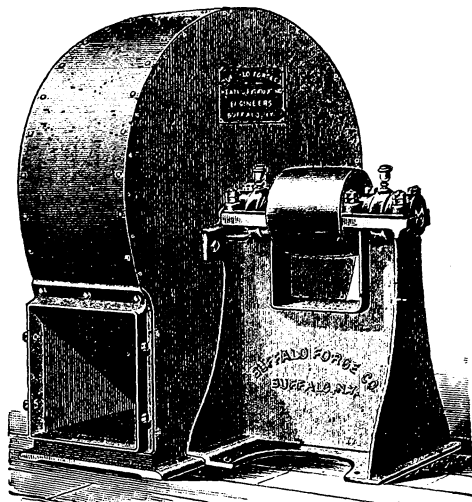
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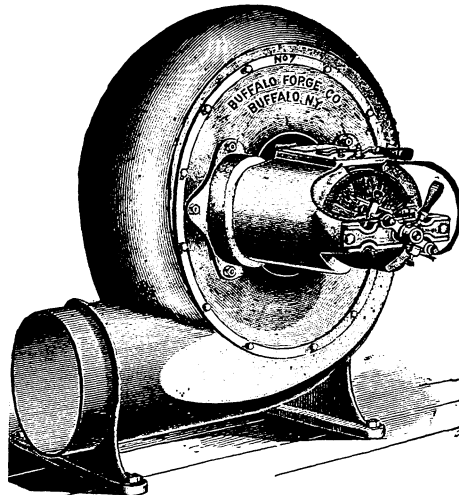
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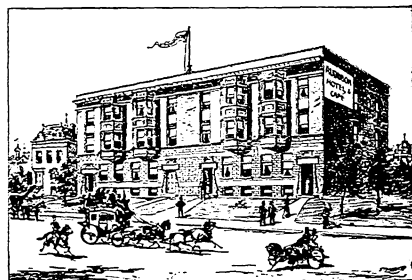
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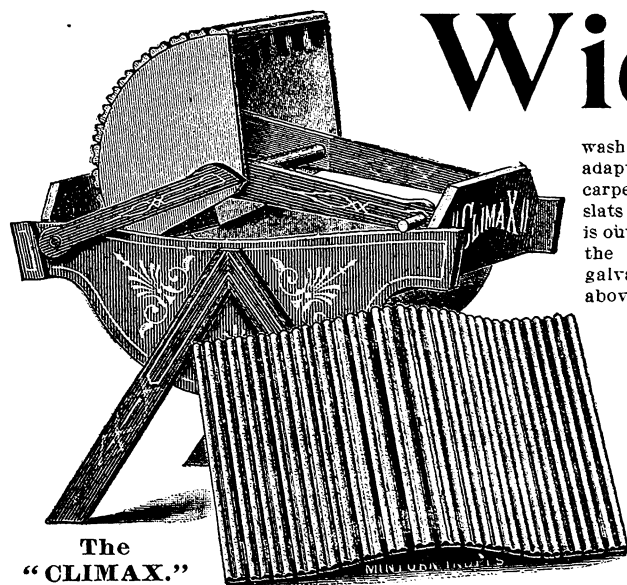
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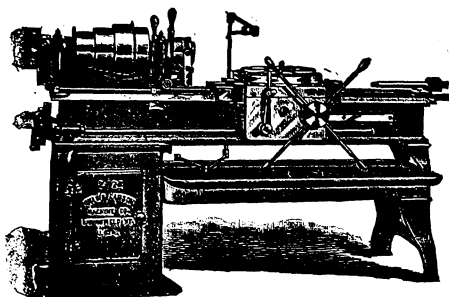
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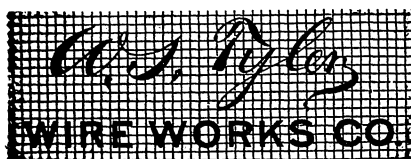
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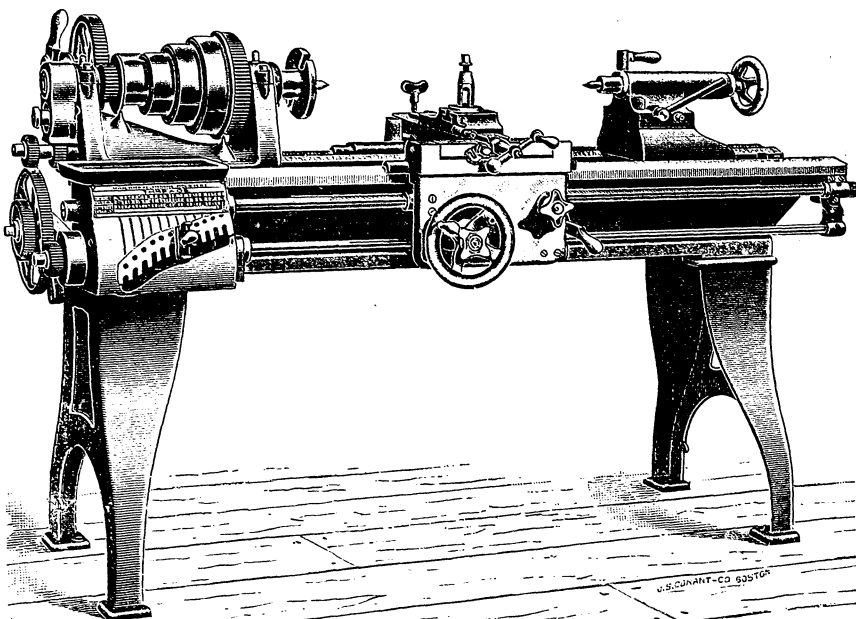
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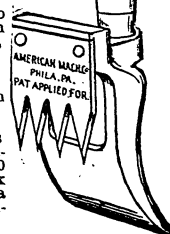
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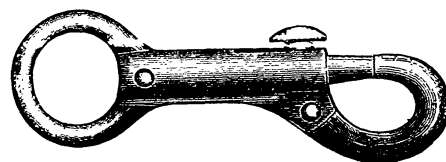
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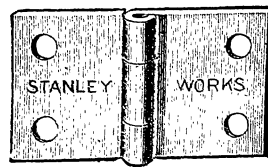
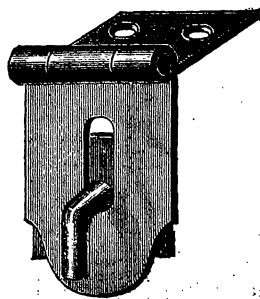
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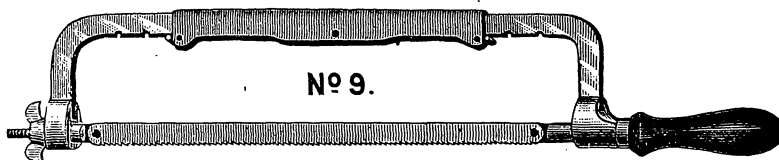
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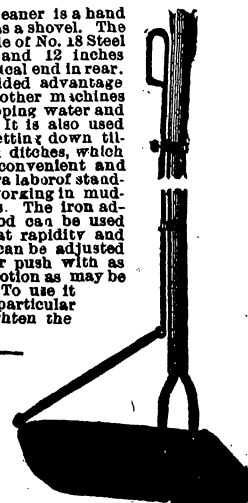
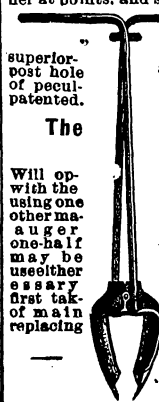
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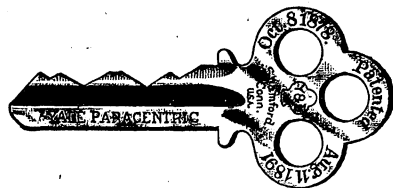
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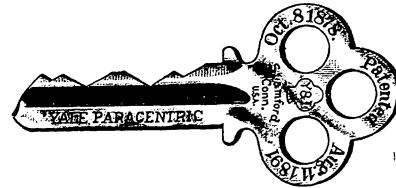
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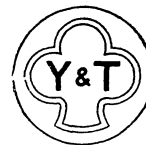
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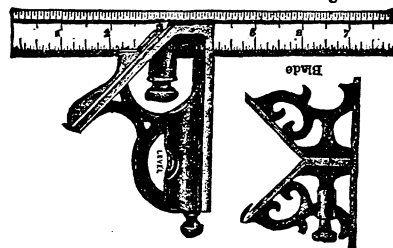
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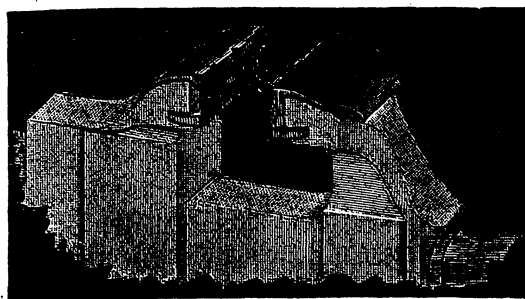
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Fig. 180.

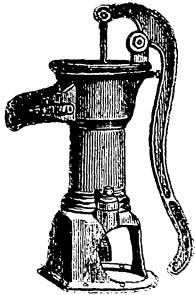
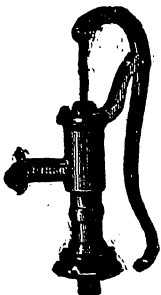


Fig. 79.



or wherever it is desired to raise a large quantity of water by hand power.

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Fig. 209.

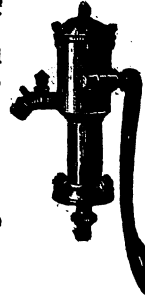


Fig. 381.



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Office, 35 Barclay St. Warehouse, 40 Park Place, New York.

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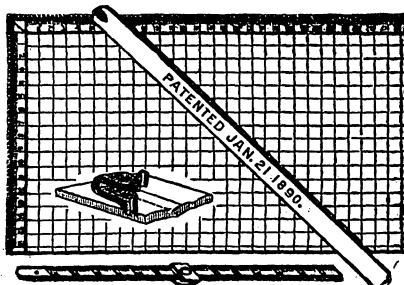
"Perfection" and "New Easy" Lawn Mowers,  
Cortland Door and Window Screens,  
"Eagle" Files,  
Union Steel Screws.  
Full line Steel and Wood Farming Tools. Shipments from Factories or Store.  
Spring Catalogue No. 5 Issued in February.

## SICKELS, PRESTON & NUTTING CO.,

Wholesale Hardware and Tinnerns' Stock.

N.Y. Office as above.

DAVENPORT, IOWA.



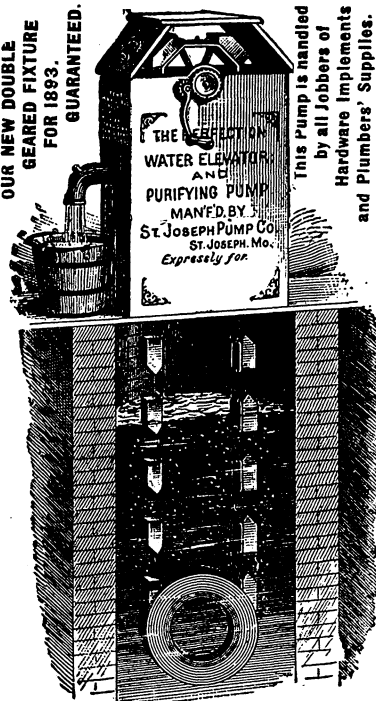
## The Canton Glass Board.

Cuts any Fraction of an Inch by Eighths.  
Unequaled for accuracy and quick work in cutting square or at any angle. Saves breakages, &c.

—ALSO—  
IMPROVED TRAMMEL RULE for Cutting Circles  
From 3 inches up to 48 inches, Segments,  
Gothic Shapes, &c.

Send for Circular.  
The Canton Saw Co., Canton, Ohio.

OUR NEW DOUBLE  
GEARED FIXTURE  
FOR 1893.  
GUARANTEED.



THE REFLECTION  
WATER ELEVATOR  
AND  
PURIFYING PUMP  
MAN'F'D BY  
ST. JOSEPH PUMP CO.  
ST. JOSEPH, MO.  
Expressly for

This Pump is handled  
by all Jobbers of  
Hardware Implements  
and Plumbers' Supplies.

# Now, Don't

Think that you can do business without carrying a line of our Pumps. Might just as well try to steer a ship without a rudder.

**ST. JOSEPH PUMP CO.,**

ST. JOSEPH, MO., U. S. A.

E. A. KING, Sec'y and Gen'l Manager.

## "RELIABLE"

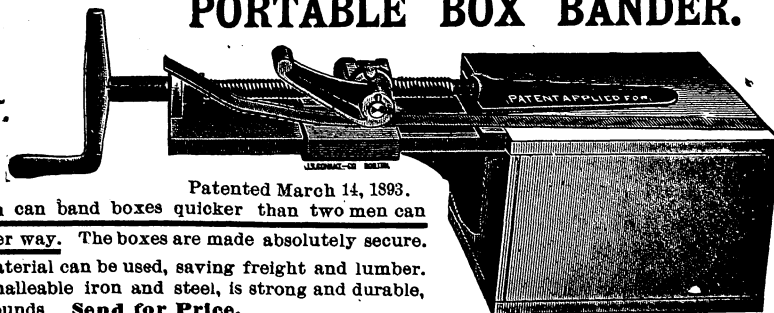
### Steel Measuring Tapes.

Entirely new. Handle or crank when closed is perfectly flush with leather case. Opens by pressing button on opposite side and folds out double, giving increased leverage. Best and most convenient steel tape on the market. Fully guaranteed. Will send samples on approval. We carry a complete stock of our goods at our New York Office, 20 Murray St.

**LUFKIN RULE CO., Saginaw, Mich.**

SOON  
PAYS  
FOR  
ITSELF.

### PORTABLE BOX BANDER.



Patented March 14, 1893.

One man can band boxes quicker than two men can in any other way. The boxes are made absolutely secure. Lighter material can be used, saving freight and lumber. Made of malleable iron and steel, is strong and durable, weighs 8 pounds. Send for Price.

J. W. GOODELL, Manufacturer,

BURLINGTON, VT.

### Lightning Band for Cases and Crates.

(COVERED BY U. S. LETTERS PATENT.)



Mounted on reels and always ready for use and convenient to handle. Easily and quickly binds shipping cases and crates in a neat, strong and substantial manner.

#### PRICES:

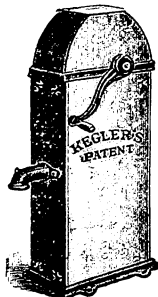
No. 1, per reel of 2000 ft., \$4.50 net.  
No. 2, per reel of 2000 ft., \$4.75 net.  
Pliers for cutting wire, 50 cents extra.  
No. 1 for cases under 300 or 400 pounds, and No. 2 for all heavier cases.  
Buffalo Specialty Mfg. Co.  
Sole Manufacturers,  
Buffalo N. Y. U. S. A.

## IRON INSTEAD OF WOOD.

### GALVANIZED IRON TUBING and CURB, — FOR — CHAIN PUMPS, (Kegler's Patent)

Are Giving Universal Satisfaction,

#### BECAUSE:



They do not rust and accumulate filth—always clean. Extreme lightness is combined with strength and durability. No freezing, no waste of water by reason of enlarged reservoir at top of tubing. No annoying wheel at bottom. Easy to handle. Tubing weighs less than 1/4 lb. per ft., is connected by couplings and can be attached to any make of curb.

Send for Catalogue.

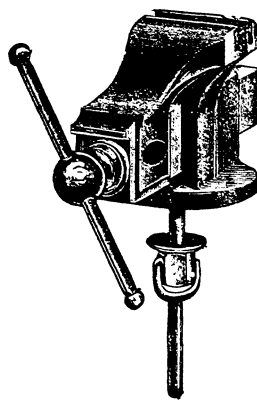
Bellevue Pump Co., Bellevue, Iowa

## COLUMBIA STEELWIND MILL

New in Principle. Beautiful in Appearance. Powerful in Operation. Contains covered Internal Gear. Unequaled in the line of Pumping Wind Mills. We solicit the closest investigation. Also Columbia Steel Derricks, Iron Turbine Wind Engines, Buckeye Force & Lift Pumps, Tank and Spray Pumps, Buckeye and Globe Lawn Mowers, Iron Fencing, Creating, Etc. Write for circulars.

MAST, FOOS & CO., SPRINGFIELD, O.

### HOLLANDS' OFFSET JAW VISE.



Specially adapted for drill press work where chucks cannot be used and equally good for special or regular bench work.

Hollands Mfg. Co.,  
ERIE, PA.,  
Manufacturers all  
styles VISES.

### NEW ADJUSTABLE BENCH LEVEL.

WITH GROUND AND GRADUATED VIAL.

4-6 and 8 inch.

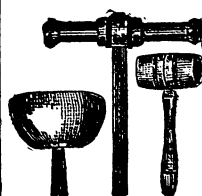


Three Sizes.

MANUFACTURED BY

C. F. RICHARDSON & SON,

ATHOL, MASS.



N. Y. MALLET AND HANDLE WORKS.

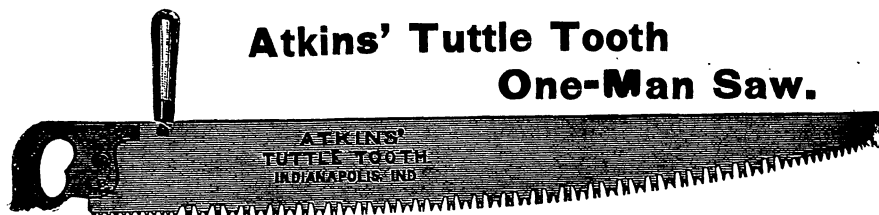
MANUFACTURERS OF  
**MALLET'S.**  
Also Cotton and Bale Hooks.

Patented Feb. 13, 1877, a new combination of Hooks.  
456 E. HOUSTON ST.,  
New York City.

# E. C. ATKINS & CO., Indianapolis, Indiana.

We make a Specialty of Fine High-Grade Saws.

## Atkins' Tuttle Tooth One-Man Saw.



### BRANCH HOUSES:

Memphis, Tenn.  
Chattanooga, Tenn.  
Minneapolis, Minn.

## ATKINS' TUTTLE TOOTH.

The Original Tuttle Tooth—the Best Saw in the World for the Money.



GEO. N. CLEMSON, Pres.

LOUIS DUHME, Vice-Pres.

ROBERT J. JOHNSON, Treas.

F. B. EARLE, Sec.

## The National Saw Co.,

### OPERATING

Wheeler, Madden & Clemson Mfg. Co., Middletown, N. Y. Woodrough & McParlin, Cincinnati, O. Woodrough & Clemson, Boston, Mass. Monhagen Steel Works, Middletown, N. Y. Richardson Brothers, Newark, N. J. Harvey W. Peace Co., Brooklyn, N. Y. Pennsylvania Saw Co., Philadelphia, Pa.

### GENERAL OFFICE

96 & 98 READE ST.,

NEW YORK.

# SAWS

## Three Essentials

### IN THE MODERN CROSS-CUT SAW.

- 1.—Teeth of uniform thickness.
- 2.—Five Gauges taper in middle of blade.
- 3.—Three Gauges heavier on ends than in center of back.

For 10 YEARS the Simonds Crescent-ground Cross-cut Saw (the only Saw on the market possessing these **ESSENTIALS**) has stood out prominently in contrast with all other makes of cross-cut saws. It has been the **CRESCENT-GROUND** against the **FIELD-MODERN IDEAS** against **ANCIENT METHODS**.

**TO-DAY** the Crescent-ground Saw is in use in every important lumber camp in the United States. Manufacturers have endeavored to imitate it, but the Machinery producing the Saw, the Process by which it is produced, and **THE SAW**, are patented. All imitations are but involuntary acknowledgments of the **SUPERIORITY** of

### THE CRESCENT-GROUND CROSS-CUT SAW.

(PATENTED DEC. 28, 1882.)

SIMONDS MFG. CO.,

FITCHBURG, MASS.

CHICAGO, ILL.

SIMONDS SAW CO.,

SAN FRANCISCO, CAL.

PORTLAND, ORE.

CIRCULAR,  
BUTCHER,

BAND,  
BUCK

## SAWS

—MANUFACTURED BY—

C. A. HILES & CO.,

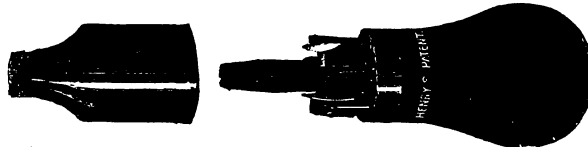
336-338 Carroll Ave., CHICAGO.

The New York Safety Dumb Waiter,  
"The Manhattan Dumb Waiter,"  
"The Improved Humphrey Hand Elevator,"  
Made specially to be sold by Hardware Stores, Thousands in use. Catalogues on application.  
**THE STORM MANUFACTURING CO.**  
NEWARK, NEW JERSEY.  
Formerly of Poughkeepsie, New York.

HORACE E. BRITTON, Stoughton, Mass.,

Manufacturer of the

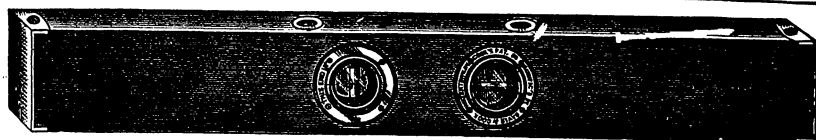
HENRY'S PATENT COMBINATION  
HAFT,



AND OTHER TOOL SPECIALTIES.

The Combination Haft contains six Brad-Awls, one Chisel, Screw Driver, Diamond Point Awl, Marking Awl, Tack Puller and Reamer. Send for Circular and Prices.

Full Set Sent Post-paid on receipt of \$1.00. (No stamps.)



## COOK'S PATENT LEVEL.

Made in Wood and Iron. Every Level Fully Guaranteed.  
Inquire at your nearest hardware store for them. If not in stock, send to

TAKE NO  
OTHER.

**DAVIS & COOK,**  
WATERTOWN, N. Y.

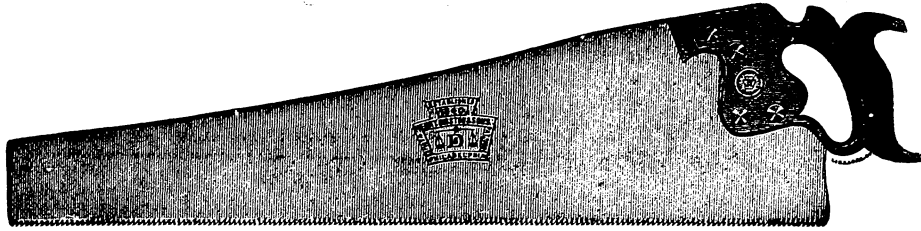


"If you want a Saw it is best to get one with a name on it which has a reputation.  
A man who has made a reputation for his goods knows its value as well as its cost and will maintain it."—HENRY DISSTON.

# THE SAWS THAT LEAD THEM ALL

## DISSTON & SONS' PATENT D-8 HAND SAW.

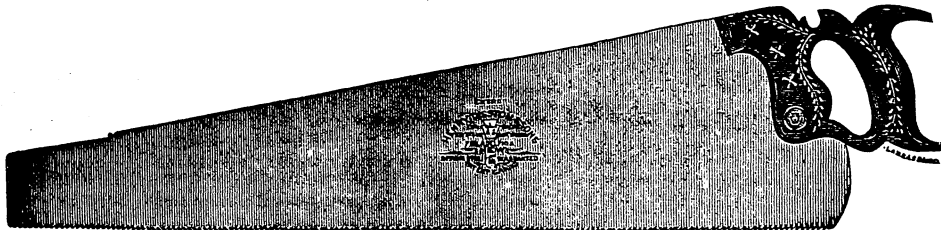
"THE  
SAW;"  
HOW  
TO  
CHOOSE  
IT,  
AND  
HOW  
TO  
KEEP  
IN  
ORDER,  
Sent  
Free  
on  
Receipt  
of  
Name  
and  
Post Office  
Address.



This Saw combines all the valuable improvements in Hand Saws that have been made by us of late. The first and most important is the hollow or skew back, the success of which can best be attested by the number sold. The peculiar shape of the butt or heel, coupled with the new method of fastening to the handle, give a full stroke of the blade without fear of catching or hooking in the work; and as the handle is put further on the blade you have a full stop on the proper point and a greater command over your Saw, by reason of being two inches nearer the point, which must give more power.

The Saw being let into the handle on a circle, has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.

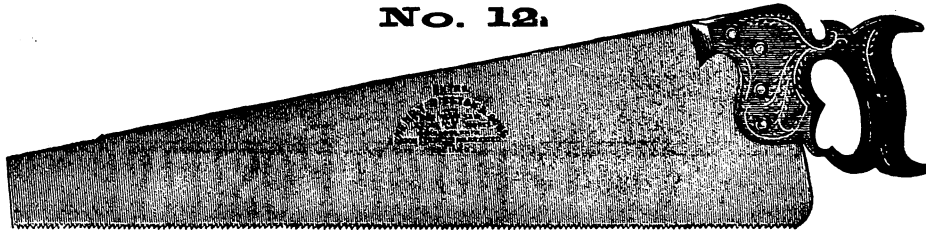
## Our New No. 16 Premium Saw.



### AN EXTRA FINE SAW IN EVERY RESPECT.

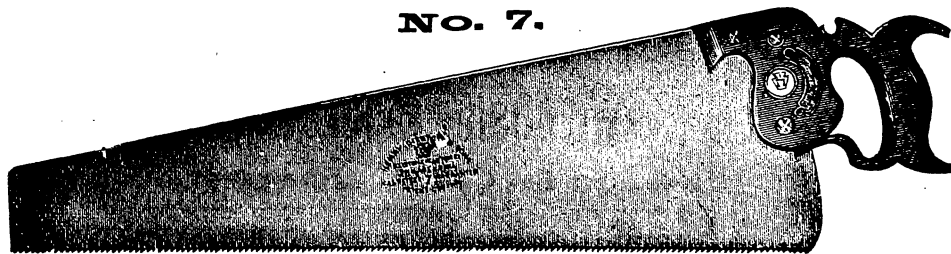
Having the Latest Close up Handle, Spring Steel Blade, Extra Thin Back, Finely Grained, with an Apple Handle and Four Brass Centennial Screws.

### No. 12.



DISSTON & SONS' Extra Refined London Spring Steel, Selected and highly Polished Blade, Handle Carved and Polished, 4 Improved Brass Screws, the finest Hand Saw manufactured.

### No. 7.



DISSTON & SONS' Cast-Steel, Warranted, Beech Handle, Polished Edge, 4 Improved Screws, Grained Blade.

"POCKET  
EDITION  
OF  
THE  
SAWYER"  
and  
"LUMBER-  
MAN'S  
HAND  
BOOK,"  
Sent  
Free  
on  
Receipt  
of  
Name  
and  
Post Office  
Address.

ASK YOUR DEALER TO ORDER THEM FOR YOU.

# HENRY DISSTON & SONS

(INCORPORATED),

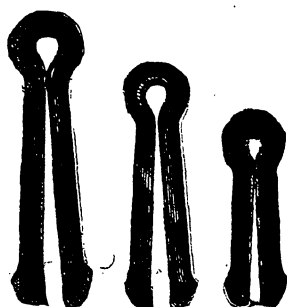
Keystone Saw, Tool, Steel and File Works, Philadelphia, Pa.

FACTORIES AT  
AKRON, - OHIO.  
CANTON, - OHIO.

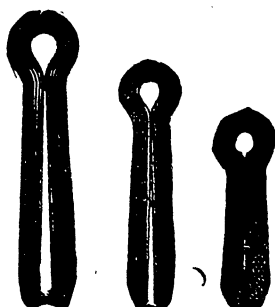
# The Whitman & Barnes Mfg. Co.

FACTORIES AT  
SYRACUSE, - N. Y.  
ST. CATHARINES, ONT.

—MANUFACTURERS OF—



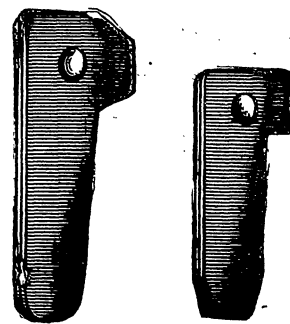
Spring Keys.



Spring Cotters.

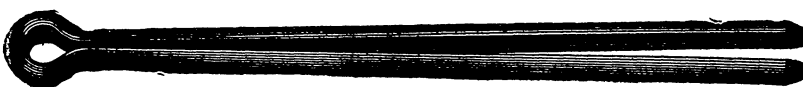


Flat Spring Keys.



Flat Riveted Keys.

BRANCHES AT  
79, 85 W. Monroe Street,  
CHICAGO ILL.  
1324 West 11th Street,  
KANSAS CITY, MO.  
126 Main Street,  
CINCINNATI OHIO.



NEW YORK OFFICE, 102 CHAMBERS ST.

BRANCHES AT  
32 So. Market Street,  
BOSTON, MASS.  
1917 Market Street,  
PHILADELPHIA, PA.  
33 Market Street,  
SAN FRANCISCO, CAL.

**NICHOLSON FILE CO.**  
 PROVIDENCE, R. I.  
 VARIETIES FILES  
 3000  
 [X.F.] AND INCREMENT CUT FILES

THE LARGEST AND MOST COM-  
 PLETE FILE WORKS IN  
 THE WORLD.

Philadelphia, 1876.



**MCCAFFREY FILE CO.,**

FIFTH and BERKS STS.,  
PHILADELPHIA, PA.

For Superiority



Manufacture and keep in stock a full line of FILES and RASPS only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade  
*Superiority acknowledged wherever used, sold or exhibited.*

BEST  
CRUCIBLE  
STEEL.

**"TROJAN" HORSE RASPS.**

LOWEST  
IN  
PRICE.

STRONGEST  
TOOTH.

**BANKER & WHITE,**

(Troy File Works.)

**TROY, N. Y.**

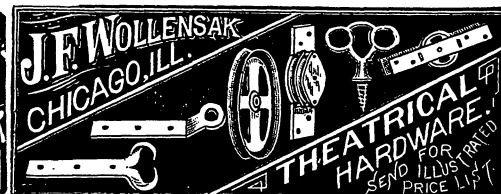
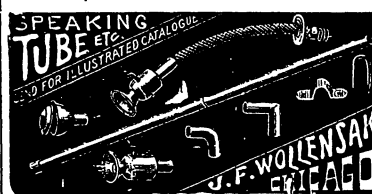
LET  
US  
QUOTE.

## The Taintor Positive Saw Set.

Mechanics are now inquiring for this tool, and Hardware Dealers should have them in stock, or at least have a sample.

For Prices and Discounts, address

**WIEBUSCH & HILGER, LTD., SOLE AGENTS,**  
84 and 86 Chambers Street, **NEW YORK.**

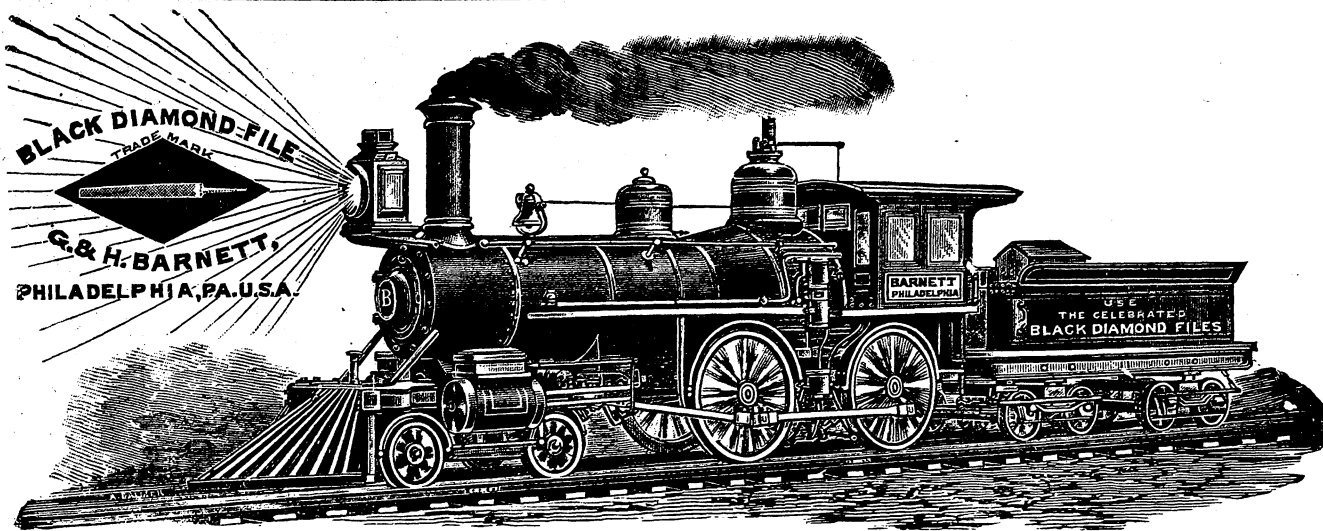


**WM. KROGSrud,**  
Engraver and Die Sinker.  
61 Fulton St., N. Y.,  
Manufacturer of  
**STEEL STAMPS**  
For Every Purpose.  
Steel Letters & Figures.  
Burning Brands, Stencils  
&c. Send for Illustrated  
Catalogue.



MONCE'S Novelty Glass Cutters are the standard. No. 17 just out. Send for Illustrations and Price.  
We also make the Compartment Font Interchangeable Lock Stencils that are having such run.

**S. G. MONCE!** No. 1. All glass men are familiar with this tool. **BRISTOL, CONN.**



# J. M. KING & CO.,

WATERFORD, N. Y.

Manufacturers of

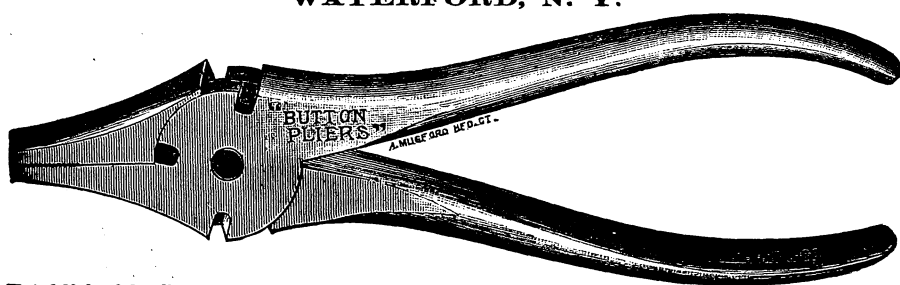
**BUTTON'S**

## Pat. Wire Cutter AND PLIER COMBINED.

Specially Adapted for Use on Wire Fence.

Also Manufacturers of BLACKSMITHS' and MACHINISTS' STOCKS and DIES, PLUG and TAPER TAPS, HAND, NUT and SCREW TAPS, PIPE TAPS and REAMERS.

Price-List on Application.



Established by DANIEL B. KING, 1829.

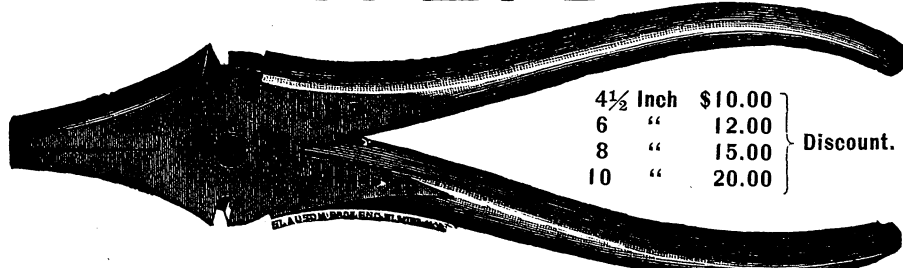
## Cronk's Patent Wire Cutter AND Bender.

8 in., \$15.00 }  
10 in., 20.00 } Discount,---



This surpasses any Plier in the market for Cutting and Bending Wire, and can also be used in place of Hill's Hog Ringer. Is especially adapted to farmers' use in building Wire Fence, &c. Our reasons for claiming that we have the best Pliers in the market are:  
FIRST.—We use the best Tool Steel and they are nicely finished.  
SECOND.—We combine both Flat and Round-Nosed Pliers in one; the concave and convex circles between the handles are used for bending wire in any desired shape.  
THIRD.—The cupping in the Nose is used for pulling tacks, brads or nails, and can also be used in place of Hill's Hog Ringer.  
FOURTH.—We can cut Barbed Wire, Barb Belt or any kind of Wire used for Fencing purposes. We also claim that we have the only Plier made that the Cutting Jaws cannot be broken.  
By passing the Wire through the Pliers it makes a very handy cut and also holds the Wire after it is cut.

**C. B. P.**



4½ Inch \$10.00 }  
6 " 12.00 } Discount.  
8 " 15.00 }  
10 " 20.00 }

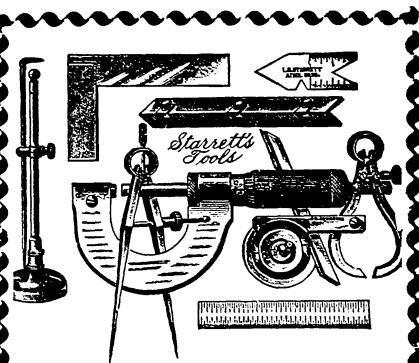
What we claim for this plier is that it is made from best quality tool steel and is made heavier and stronger than any plier of its kind in the market and the finish is first-class. Also they are made so the jaws are parallel when used on wire from 9 to 14 gauge and will hold the wire solid.

**CRONK HANGER CO.,** Sole Manufacturers, Elmira, N. Y.

Pacific Coast Agents: CHAS. L. PIERCE & CO., San Francisco, Cal.

## THE CLARK MFG. CO.,

Blind Hinges, Gate Hinges, Door Butts,  
And other **HARDWARE SPECIALTIES**  
BUFFALO N. Y.



## Skilled Mechanics

want tools that are warranted accurate, best in workmanship, latest in design, finest in finish.

## Live Dealers

want tools they can swear by, not at. That can be relied upon to satisfy intelligent customers. That come nicely put up. That pay a good profit.

## Starrett's Tools

meet the requirements of both.  
SEND FOR CATALOGUE.

**L. S. STARRETT**

Athol, Mass., U. S. A.

LONDON AGTS: Chas. Churchill & Co., Ltd.,  
21 Cross St., Finsbury, E. C.

TRADE MARK



# John Wilson's Butchers' Knives and Steels, Skinning, Sticking, Farriers' & Shoe Knives,

Have established and maintained their reputation, for superiority,  
against all Competitors, from

**THE YEAR SEVENTEEN HUNDRED & FIFTY,**  
and are still in increasing demand. As in the past, it is the unalterable  
**DETERMINATION OF THE HOUSE TO SEND OUT NOTHING BUT WHAT IS OF THE HIGHEST POSSIBLE QUALITY.**

WORKS: SYCAMORE STREET, SHEFFIELD, ENGLAND.

SOLE AGENTS FOR THE UNITED STATES, AND THE CANADAS.

Messrs. Hermann Boker & Co., 101 and 103 Duane St., New York.

CORPORATE MARK



## JOSEPH RODGERS & SONS, Limited.

—MANUFACTURERS OF—

Pocket and Table Cutlery, Scissors, Razors, Erasers, &c., &c.

These goods have fully maintained their reputation as the best cutlery in the world for over

**ONE HUNDRED AND FIFTY YEARS.**

Any Infringements of our Name and Corporate Mark will be promptly prosecuted.

Sole Agents for the United States,

**ALFRED FIELD & CO., 93 Chambers and 75 Reade Street, New York.**

Established 1836.

### ALFRED FIELD & CO.

93 Chambers and 75 Reade Streets,

NEW YORK.

IMPORTERS OF

**HARDWARE, CUTLERY, GUNS ANVILS,  
CHAINS, FILES.**

SOLE AGENTS FOR

Joseph Rodgers & Sons, Best Cutlery in the world; W. K. & C. Peace, unrivaled Grass Hooks, Straw Knives and Scythes; Joseph Elliot & Sons Celebrated Razors; Peugeot Frères, "French Toilet" and other Clippers; L. Hugoniot Tissot, Fine Steel Pliers, &c.; Eley Bros., Caps, Wads Cartridge Cases, &c.; Webster & Horsfall, Steel Wire of every description.

Send for Rodgers' New Illustrated Catalogue

We manufacture all kinds of

### EDGE TOOLS

of highest grade and sell at proper prices  
Send for Illustrated Price-List.

**Buffalo Edge Tool Works.**

308, 310 and 312 William Street,  
BUFFALO, N. Y.

**CHAS. DAVIES & CO.,**

MANUFACTURERS OF

**LADDERS,**

Extension and Single. Fire, Railroad and Painters' Ladders.

**LAWN SWINGS,**

Window Jacks and Swing Scaffolds. Trade discount 20 and 5% list. We pay the freight. Catalogue Furnished.

329 to 335 West 3d St.,

Williamsport, Pa

"ISN'T IT A DAISY?"

"WHAT?"

**Our New Catalogue.**

"HAVEN'T SEEN IT?"

THEN SEND FOR IT.

H. H. MAYHEW CO., Shelburne Falls, Mass

### THE FOX SAFETY RAZOR.

(U. S. Patent 484,116, October 11th, 1892.)

Is the finest and most practical in the world.

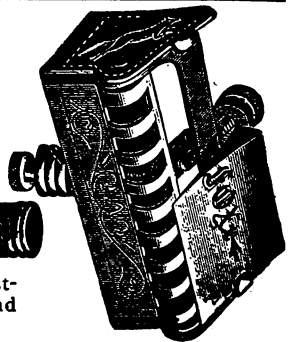
EVERY MAN HIS OWN BARBER.



Makes shaving a luxury; no danger of cutting. Adjustable blade. Silver plated frames. Sole manufacturer and patentee,

**E. LOTHAR SCHMITZ, 92 Reade St., New York.**

Sold by all the Leading Hardware and Outlery Houses.



### Underhill, Clinch & Co.,

94 Chambers St., New York.

O. Ames & Sons, Shovels, Spades and Scoops,  
Chadborn & Coldwell Mfg. Co.'s Lawn Mowers.  
Utica Tool Co.'s Hoes and Rakes.

Sheble & Klemm's Manure and Hay Forks.  
David Wadsworth's Scythes.

English Riveted Scythes and Grass Hooks.

Malleable Iron Rakes, Wooden Rakes,

Scythe Snaths, Scythe Stones,

Poultry Netting, Green Wire Cloth,  
&c., &c., &c.

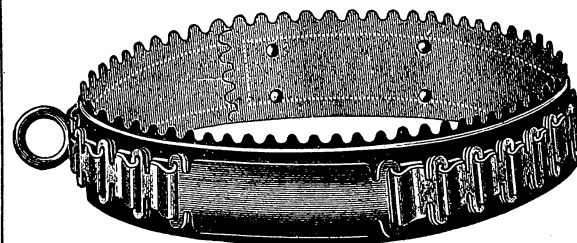
### KELLEY'S PATENT DOG COLLARS,

**HALTER  
CHAINS,**

**Dog Leads**

AND

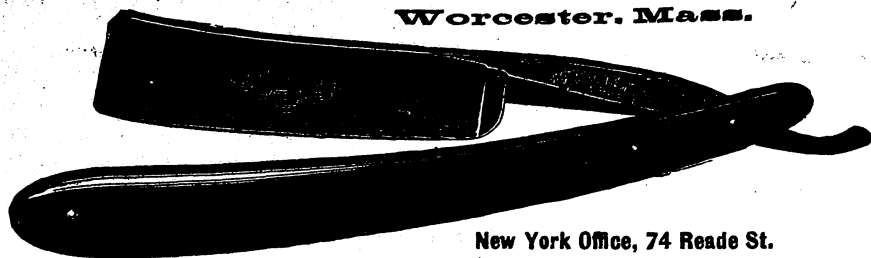
**Key Chains.**



**KELLEY & WOOLWORTH, Niagara Falls, N. Y.**

# J. R. TORREY RAZOR CO.,

Worcester, Mass.



New York Office, 74 Reade St.

Our Razors have become the standard for excellence and are no higher in price than the foreign. We manufacture and carry in stock more than 200 styles. Send for illustrated catalogue.

# THE STANDARD.

## BUCK BROTHERS,

MILLBURY, MASS.

The Most Complete Assortment in the U. S. of

Shank, Socket Firmer and Socket Framing  
Chisels.

## PLANE IRONS.



TRADE MARK

CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by unprincipled persons who represent them as our make. Our tools are stamped "BUCK BROTHERS," and our labels have on our trade-mark also, "Riverlin Works."

Established 1825.

Incorporated 1892.

## R. HEINISCH'S SONS CO.,

NEWARK, N. J., U. S. A.

New York office, No. 90 Chambers St.

Tailors' Shears, Trimmers, Scissors, Tinners' Snips, etc.

CATALOGUES AND PRICES ON APPLICATION.

**WE HAVE NO CONTRACT WITH  
MESSRS. HERMANN BOKER & CO. AS  
AGENTS FOR THE SALE OF OUR GOODS.**

HIGHEST AWARD PARIS EXPOSITION, 1889.

ESTABLISHED 1837.  
INCORPORATED 1892.



THE L. & I. J. WHITE CO.  
BUFFALO, N. Y.

MANUFACTURERS  
OF

EDGE TOOLS.

Coopers', Carpenters' and Ship Tools, Plane Irons,  
Cleavers, &c. Full Line Chisels.



FOR THE CORRECT MODE IN SHAVING  
USE CURLEY'S PATENT  
SAFETY

GUARD

RAZOR

THIS improvement permits CORRECT SHAVING, therefore no irritation is caused, and the most inexperienced can shave with perfect safety.

We also carry the largest line in the United States of CUTLERY of every description.

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6 WARREN STREET, - - NEW YORK.

# Cast Shears.

ACME SHEAR CO.,

BRIDGEPORT, - CONN.

MARTEN DOSCHER,

Commission Hardware.

88 Chambers St., New York.

Agent—G. W. Bradley's Edge Tools, Axes, Coopers' Tools, Cleavers, Bush Hooks, Draw Knives, Ship-Carpenters' Tools, &c. Also a full stock of Planes, Brooks' Bright Wire Goods, Washita Stone and Taunton Tack Co.'s Rivets, &c.

# ALASKA.

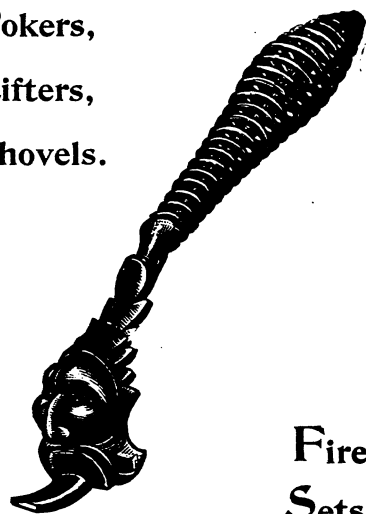
ALWAYS COLD.

Stove Trimmings.

Pokers,

Lifters,

Shovels.



Fire  
Sets.

For Sale by All

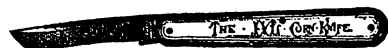
First-class Jobbers in Hardware.

Made under Gaitly Patents and only by

**Troy Nickel Works,**  
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FRANCIS FROST & CO., Toronto, Ont.  
Canadian Sales Agents.

WHEN IN WANT OF  
WOSTENHOLM'S  
**I★XL**



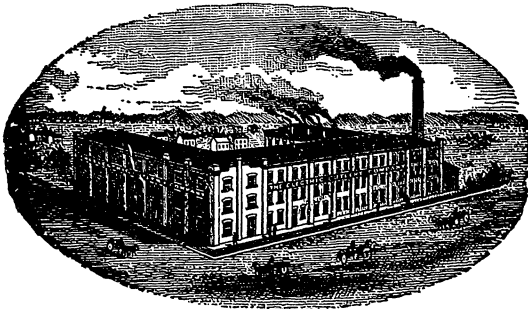
Knives or Razors,

SEND TO

**FRED. B. GURNEY.**

116 Chambers St., N. Y.

# The Best Equipped Cutlery Works in the World.



FACTORY: FOURTH &amp; DICKERSON STS. NEWARK, N. J.

## THE ELECTRIC CUTLERY CO.,

113 Chambers St., N. Y., and Newark, N. J.

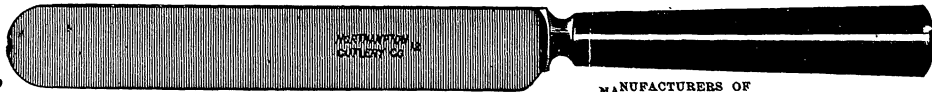
Manufacturers of Razors, Knives,  
Razor Strops, Scissors and Shears.

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NEW YORK

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MANUFACTURERS OF

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TABLE CUTLERY, BUTCHERS' CARVERS, PLATED GOODS, &amp;c.

Send for Revised Catalogue.

**W. & S. BUTCHER, Sheffield, England,** and 135 Duane St., New York  
Makers for over *One Hundred Years* of the celebrated "*W. Butcher*" Files and  
Edge Tools and "*Wade & Butcher*" Razors, and the Original Manufacturers of Hollow  
Ground Razors, can with confidence highly recommend their goods and particularly their



Brand as being the most perfect *Extra Hollow Ground*  
Razors ever manufactured and especially suited for the use of  
Barbers and for private use. Genuine Razors are marked with  
one of the following Corporate Trade-Marks:

WADE & BUTCHER  
SHEFFIELD, ENGLAND

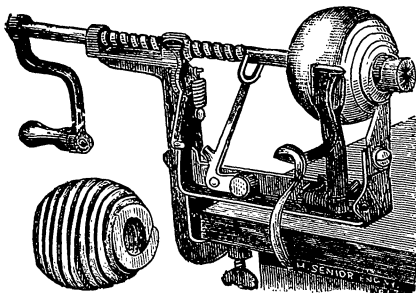
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FOR SALE BY ALL DEALERS IN HARDWARE, CUTLERY AND FANCY GOODS.



**WE** HAVE had nearly thirty years' experience in manu-  
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For family use, evaporators, bakers, hotels, restaurants,  
etc., etc., we make Apple Parers to pare; pare and core; pare,  
core and slice, for hand or power use; with capacity as high as  
100 bushels per day.

We are the oldest and largest manufacturers of Apple Parers in the world, and we make a  
larger variety than has ever been made by any other firm. We think we know how to construct  
Apple Parers, so as to produce the most satisfactory and economical results.

If you want Apple Parers, we want your order. and solicit correspondence.

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### FAYETTE R. PLUMB,

Edge Tools,  
Hammers

AND

Sledges.

Penna. R. R., Tucker and James Sts.

Manufacturer of



Main Office and Works

Railroad,  
Miners'

AND

B. S. Tools.

Philadelphia Pa., U. S. A.

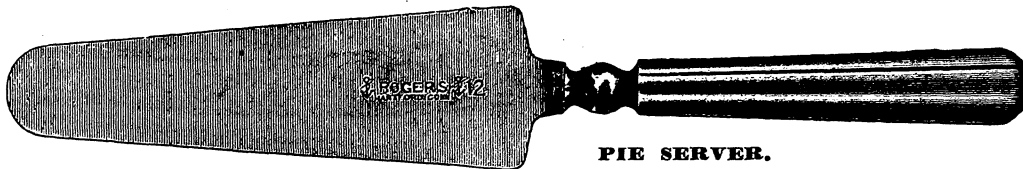


—NONE BETTER—

THAN THE



## SILVER PLATED WARE.



PIE SERVER.

MANUFACTURED BY

THE Wm. ROGERS MFG. Co.,

Office and Factory, HARTFORD, CONN. P. O. Drawer 30.

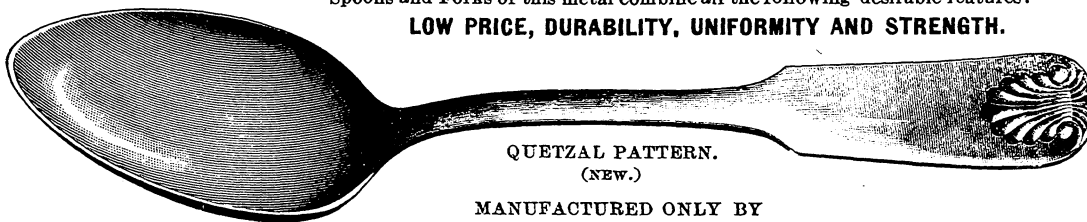
NEW CATALOGUE FOR THE ASKING.

## AZTEC COIN METAL

MADE INTO SPOONS AND FORKS.

Spoons and Forks of this metal combine all the following desirable features:

LOW PRICE, DURABILITY, UNIFORMITY AND STRENGTH.

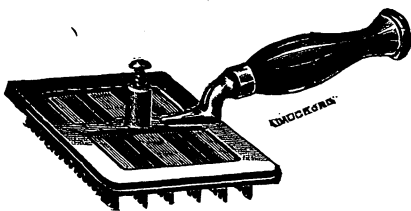
QUETZAL PATTERN.  
(NEW.)

MANUFACTURED ONLY BY

THE HOLMES &amp; EDWARDS SILVER CO.,

Bridgeport, Conn.

AZTEC COIN METAL  
has no plating to  
wear off. Made  
of solid metal.  
Easily kept clean.

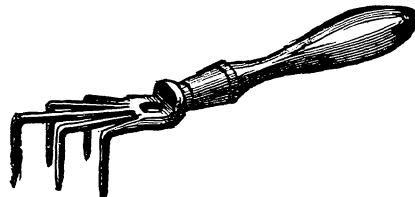


A full line of Boys' Garden Sets, Floral Sets  
Kitchen Hardware and Hardware for Children's  
Carriages.

Sole makers of the celebrated "Maud S."  
Self-Cleaning Curry Comb.

**B. B. NOYES & CO.,**  
Greenfield, Mass.

Send for full Catalogue and Prices.

*Hand Screws*

Hand Screw Spindles made of  
strictly second growth Hickory—  
never anything else.

*Case's Glue Clamps*

All threads cut with a saw to  
leave the grain solid—a patent  
process.

*Cabinet Makers  
Benches*

Nearly 700 of our Benches  
used by Grand Rapids Furniture  
makers alone.

WRITE FOR CATALOGUE.

*Grand Rapids Hand Screw Co.*

GRAND RAPIDS, MICH.

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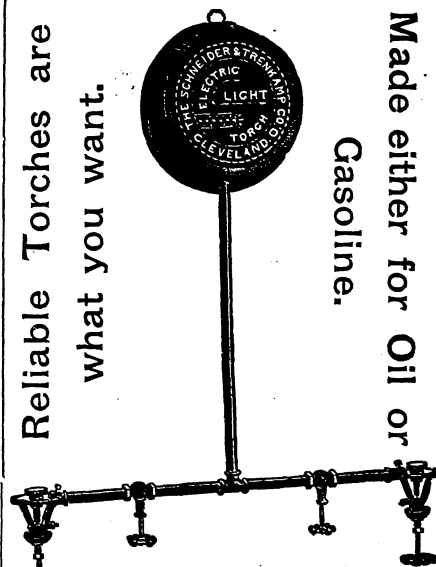
By F. B. GODDARD.

12mo. Flexible Cloth, 50 Cents.

In this book the author lets the reader into the secrets of the accomplished and successful  
salesman, illustrates his tact and finesse, and tells how he masters men; but beyond this, the work  
embraces much information which will be instructive and useful to all classes of business  
men. Besides suggestions to buyers, it contains chapters on "Changes in Business Conditions  
and Methods," "Salesmen's Compensation," "Retail Merchants and Salesmen," "Saleswomen,  
"How to Read Character," with a collection of clearly and tersely put important Legal Prin-  
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Reliable Torches are  
what you want.



Made either for Oil or  
Gasoline.

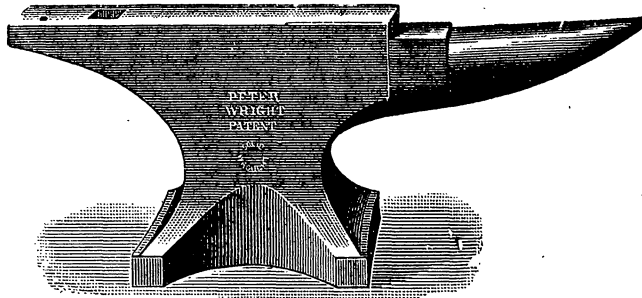
These Torches are particularly adapted for use in  
Factories, Foundries, Machine Shops, Rolling Mills,  
Blacksmith Shops, Warehouses, &c. They make a  
strong white light, are free from smoke and are not  
affected by wind or rain. They are convenient and  
portable. These Torches can be run at an expense of  
about one-half cent to one cent per hour, burning a  
bright, steady light which is ten times greater than  
the light of an ordinary gas burner.  
Write us for prices. A liberal discount given to the  
trade. Manufactured by  
**THE SCHNEIDER & TRENKAMP CO.,**  
Nos. 479 to 497 Case Ave., Cleveland, Ohio

# Peter Wright's Patent Solid Wrought Anvil

PETER  
WRIGHT  
PATENT

SOLID  
WROUGHT

Fac-Simile of Trade-Mark.



Fac-Simile of Green Label.

By Royal Letters Patent,

V. R.

PETER WRIGHT'S

SOLID WROUGHT  
ANVIL

Made of Best Scrap Iron!  
THE BICK FACE AND END ALL  
IN ONE SOLID PIECE!

You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other.

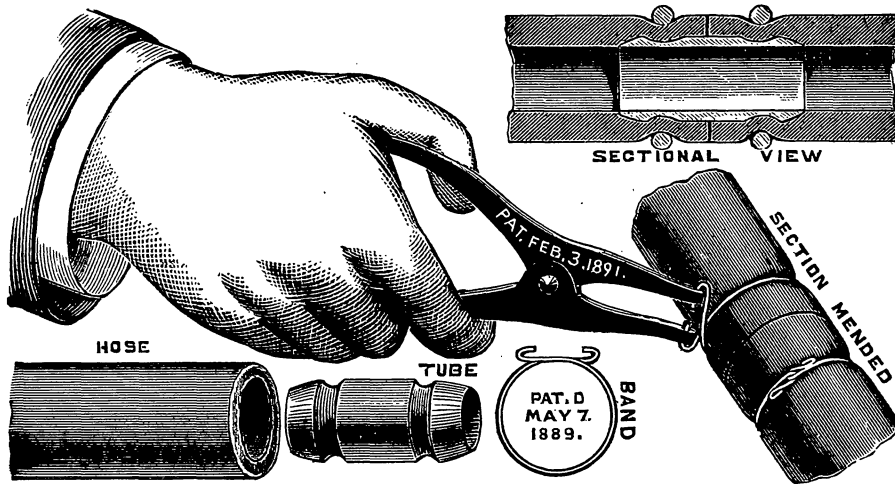
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**WORLD'S FAIR.**

BRITISH SECTION,  
MACHINERY BUILDING.

PETER WRIGHT & SONS, DUDLEY, ENGLAND.

## HUDSON'S GARDEN HOSE MENDER.



Put up in Boxes for Family Use.

Each Box Contains 1 Pair Pliers, 6 Tubes, 20 Bands.

Hose can be mended or Couplings fastened on

**CHEAPER,  
QUICKER and  
MORE SECURELY**

than with any other device.

Screw menders tear the rubber lining from the hose. OURS will not. If you wish to handle a good thing with a good profit write for circular and prices.

**C. E. HUDSON & CO.,**  
LEOMINSTER, - - - MASS.



outs, Kennel Chains, &c.; also cut to lengths for manufacturers' use.

The cut represents the exact size of 6/0.

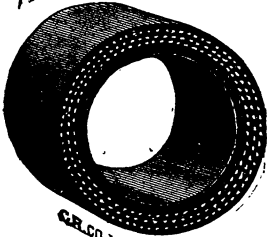
Thirteen Sizes made, 6/0 being the Largest.

**The Bridgeport Chain Co.'s Triumph**

Chain, made into Halters  
Traces, Cow Ties, Tie-

**FACTORY AT  
BRIDGEPORT, CONN.**

NEW SEAMLESS TUBE



## Who Has Not Had Bad Hose?

Who has not lost time, patience, money, by attempting settlement for such goods?

**THE CAUSE** in nine cases out of ten is the lapped seam.  
**THE REMEDY** is in buying our

**PATENT SEAMLESS-TUBE HOSE,**

made by machinery, the tube run like lead pipe, through a die. There is no lapped tube, no seam, no cracks, no defects: water cannot get through to rot the duck and cause the hose to burst.

Made in All Sizes and Kinds of Garden, Engine, Steam, Fire, Brewers' Cotton Hose, &c.

Order a Sample Bale of our Seamless-Tube Hose—Best in the World, costs no more than ordinary lapped-seam hose. The different colors, Red, White, Black, Green and Yellow, make a fine window or sidewalk attraction.

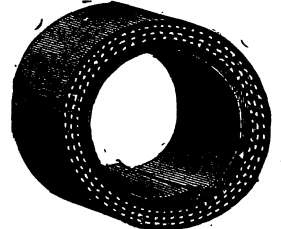
**CLEVELAND RUBBER WORKS**

of the Mechanical Rubber Co.,

CLEVELAND, O.,

Makers of Mechanical Rubber Goods, Clothing, Druggist's Sundries, Specialties, Etc.

OLD LAPPED TUBE.



SALES OF  
Over Two Million Feet

—OF—  
**GARDEN HOSE**

alone during the past year, distributed throughout the United States, and not a single piece complained of, justifies us in guaranteeing that it will give absolute satisfaction.

We were awarded an order of  
25,000ft. for World's Fair

of our Celebrated  
**Seamless-Tube  
COTTON RUBBER-LINED HOSE.**

**We Want Your Trade.**  
Send for 60-page Catalogue.  
Write for Prices and Samples.

Warranted Better than the Best

ESTABLISHED 1843.

MORE THAN 200 DIFFERENT PATTERNS.

None Genuine without our Trade-Mark,

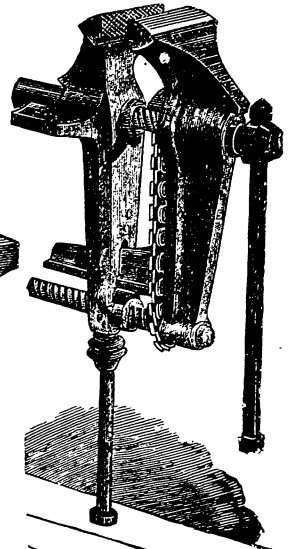
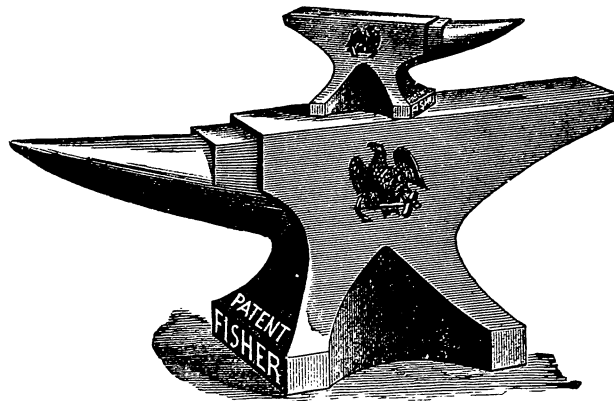
EAGLE and "FISHER" Stamp.

**ENGLISH ANVIL**

Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough untempered steel, never to break or bend. Only Anvil made in United States fully warranted as above.

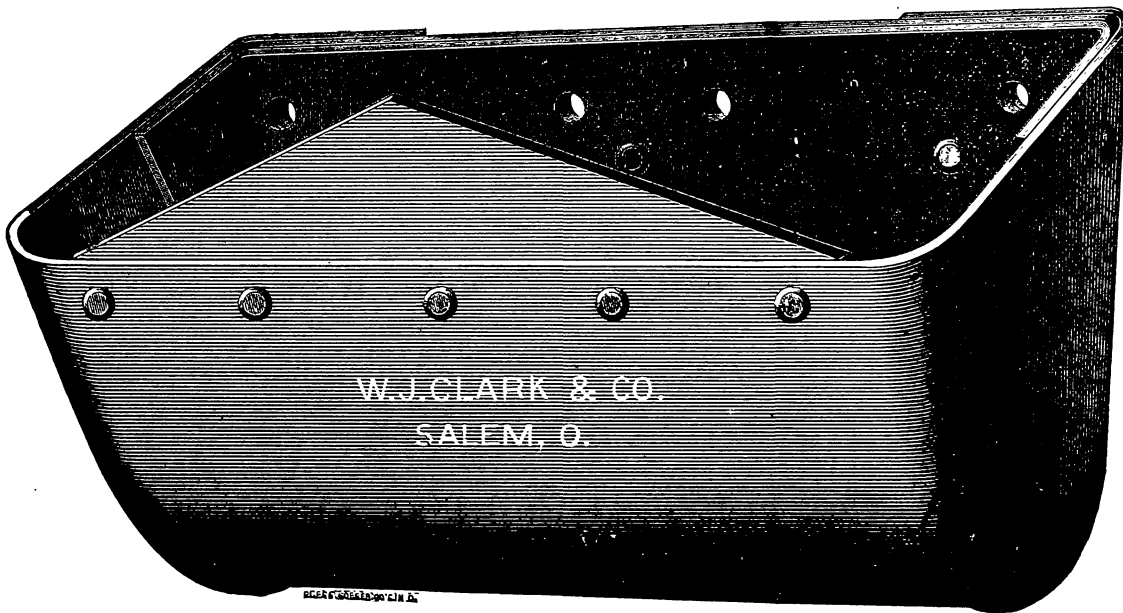
**FISHER DOUBLE-SCREW VISE**

IS FULLY WARRANTED STRONGER THAN ANY OTHER LEG VISE, AND ALWAYS PARALLEL. Is the best Vise for Machine Shops and Blacksmiths, and for all heavy work. ACCURATE AND DURABLE. Send for Circular.

**EAGLE ANVIL WORKS,****Trenton, N. J.**

Sold in New York by our agents, J. C. McCarty & Co., 97 Chambers St., The Russell & Erwin Mfg. Co., 45 Chambers St.

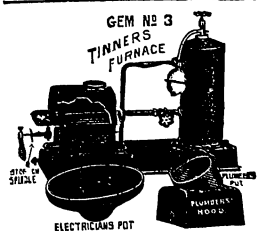
Milling, Mining, and Grain Elevating Buckets always in stock. Any size.



Elevating and Conveying Apparatus a Specialty.

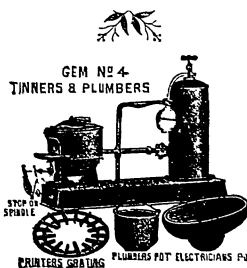
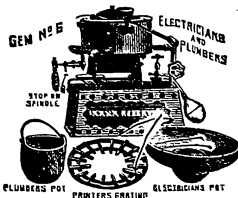
Extra heavy "SALEM" elevator buckets with DIGGERS to enable them to load themselves when used for loading cars with dirt, sand, gravel, &c. We make them of any size and of any Strength required.

W. J. CLARK & CO., General Sheet and Plate Metal Workers, SALEM, OHIO, U. S. A.  
Send specifications for estimates on any special work wanted.

**Burgess Gem Gasoline Furnaces.**

All are equipped with the cylindrical slotted burner. For sale by all first class jobbers, or write us for descriptive circulars.

**BURGESS SOLDERING FURNACE CO.,**  
**J. BURGESS & SONS, Props. and Mfrs.,**  
Columbus, Ohio.



**PRICE-LIST:**  
No. 3 and 4, Tin Reservoir, \$7.00 ea.  
No. 3 and 4, Copper " 8.50 ea.  
No. 6, XXXX Reservoir, 7.50 ea.  
No. 6, Copper " 9.00 ea.  
Plumbers' Hood for No. 3, 50¢ ea.  
Electricians' Pot for Nos. 3, 4 and 6, 50¢ ea.  
Electricians' Pot for Nos. 3, 4 and 6, 75¢ ea.  
Printers' Grating for Nos. 4 and 6, 50¢ ea.

All guaranteed to work out of doors or on roofs. Nos. 4 and 6 will melt metal and heat coppers at the same time.

**ADJUSTABLE CARPENTERS' CLAMP.**

MANUFACTURERS OF

Bench Stops, Standard Clamps, Adjustable Clamps, Carpenters' Clamps, Band Setters, Adjustable Hollow Augers, Twist Drill Bits for metal, Twist Drill Bits for wood.

THE CINCINNATI TOOL CO., 281 Broadway, Cincinnati, Ohio, U. S. A.

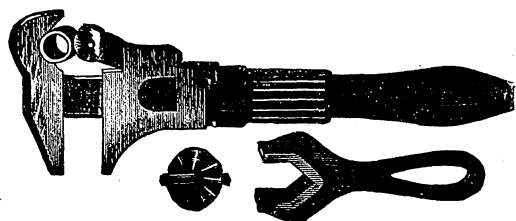
**The Sensible Saw Handle.**

**Glwnner Mfg. Co.,**  
HAMILTON, O.

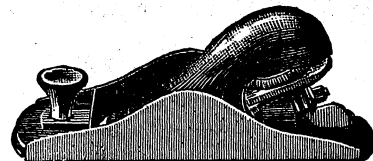
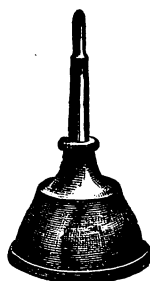
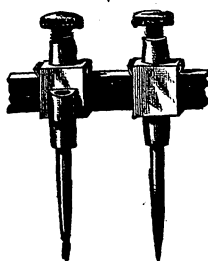
HARMON & DIXON, Agts., 118 Chambers St., N. Y.

**Pocket Companion.** Containing useful information and tables appertaining to the use of wrought iron and steel as manufactured by Carnegie, Phipps & Co., Ltd., Pittsburgh, Pa. For engineers, architects and builders. 1892 edition. Edited by C. L. STROBEL, C.E., assisted by F. H. KINDL, C.E. Leather with flap, 334 pages..... \$2.00  
For Sale by DAVID WILLIAMS, 96-102 Reade St., N. Y.

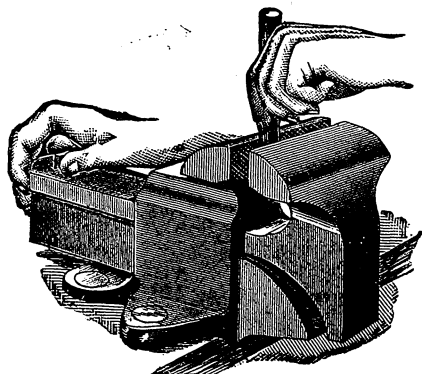
# HIGH QUALITY TOOLS



Donohue's Pat. Engineers' Wrenches,  
Short or Long-Sleeve Nuts, and  
with Pipe Cutter.



Chaplin's Patent Iron Planes,  
Corrugated Bottoms,  
Checkered Rubber  
Handles.



Stephens' Patent Vises, Quick Adjust-  
ing Cam and Toggle-Joint, Sta-  
tionary or Swivel Base.



Challenge Iron Planes.  
Simplicity of Construction.

Boardman's Pat. Wrenches, Excelsior Expansion Bits, Whitney Drills, Baxter's Wrenches,  
Wood's Pat. Plumb and Levels, Devoe's Square Attachments, Gem Wrenches,  
Malleable Oilers and Lamps, Pencil Attachments.

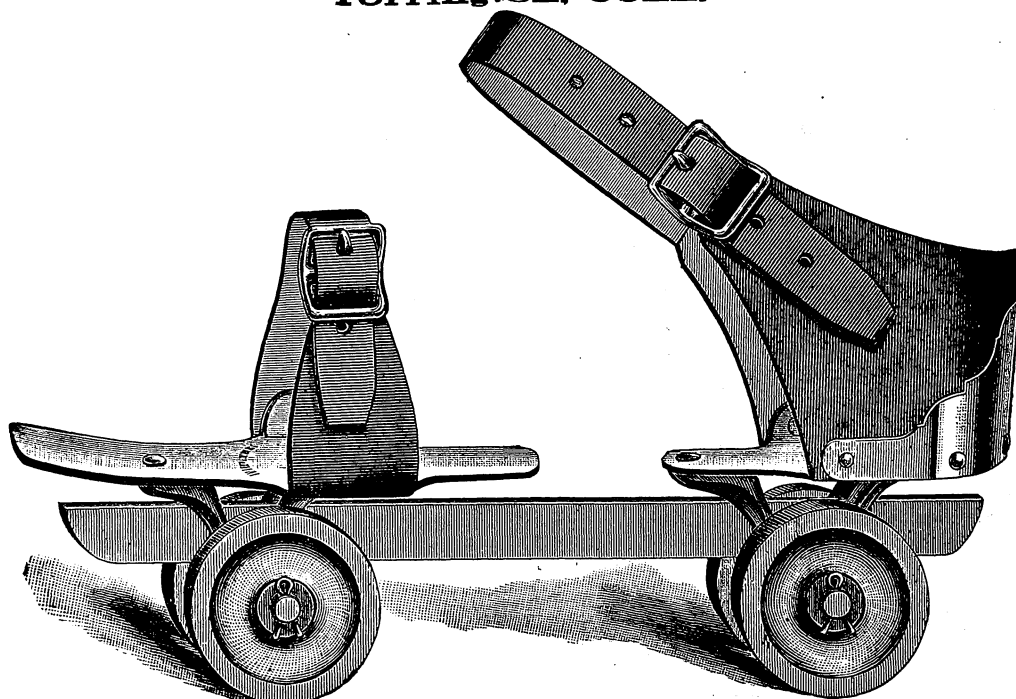
**TOWER & LYON, Manufacturers, - - 95 Chambers St., New York.**

**SIDEWALK AND RINK ROLLER SKATES OF ALL KINDS.**

—:MADE BY:—

**THE UNION HARDWARE CO.,**

Torrington, Conn.



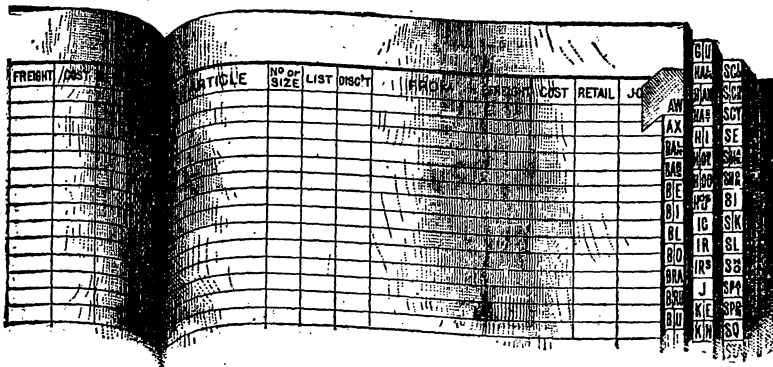
The above illustrates our new Extension Skate, one size fitting all shoes from 8 to 11 inches. We also have it in full clamp and in both plain and nickel finishes.

—NEW YORK OFFICE:—

**TOWER & LYON. - - - - 95 Chambers Street.**

# The Iron Age Hardware Price Book E.

SECOND EDITION, REVISED AND ENLARGED, WITH MULTIPLE INDEX (Patent Pending).



AD GU SC<sub>0</sub>  
AN HA<sub>L</sub> SCR  
AU HAN SCY  
AW HA<sub>S</sub> SE  
AX HI SH<sub>E</sub>  
BA<sub>N</sub> HO<sub>L</sub> SH<sub>R</sub>  
BA<sub>S</sub> HOO SI  
BE HO<sub>S</sub> SK

Fac-Simile of Indexing.

**SIZE.**—The book is 7 x 10 inches (much larger than Price Books A, B, C, or D), 350 pages.

**PAPER.**—The paper is the celebrated Crane's heavy ledger paper, tough and strong, permitting frequent changes and erasures.

**BINDING.**—The binding is of the very best quality—flexible seal grained leather.

**INDEX.**—By means of the arrangement shown in the cut the index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line.

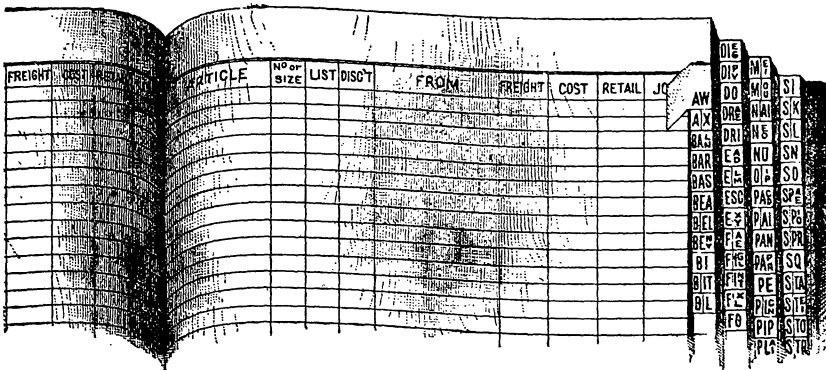
**ARRANGEMENT.**—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

**SUPPLEMENT.**—A 40-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

THIS BOOK IS ISSUED IN ONLY ONE EDITION, PRICE, \$5.00.

# The Iron Age Hardware Price Book F.

WITH MULTIPLE INDEX (Patent Pending).



AD DI<sub>E</sub> ME SI  
AN DI<sub>V</sub> MO SK  
AU DO NAI SL  
AW DR<sub>E</sub> N<sub>O</sub> SN  
AX DRI NU SO  
BA<sub>N</sub> E<sub>A</sub> O<sub>P</sub> SP<sub>E</sub>  
BAR E<sub>M</sub> PA<sub>O</sub> SP<sub>O</sub>  
BAS ESC PAI SPR

Fac-Simile of Indexing.

**SIZE.**—The book is 8 1/4 x 11 inches (much larger than Price Books A, B, C, D or E), 556 pages.

**PAPER.**—The paper is the celebrated Crane's heavy ledger paper, tough and strong, permitting frequent changes and erasures.

**BINDING.**—The binding is of the very best quality—flexible seal grained leather.

**INDEX.**—By means of the arrangement shown in the cut the four rows of index applies to every page (except Supplement) and permits reference to any article at a single motion. This greatly facilitates the use of the book, avoiding the troublesome turning from page to page which is necessary in connection with other Price Books. It has been prepared with great care, and it is believed that it provides a place for every article in the Hardware line, and gives ample space for recording prices.

Sufficient space has been provided for large lines of goods such as Axes, Bits, Springs, etc., by allowing four pages to such indices, instead of two pages, as for lines of goods requiring less space. This is accomplished, as in AX for example, in Book F by having a short tab with the letter A on the tab on the first leaf, and AX on the tab on the second leaf. The A on the first leaf is directly over the A on the lower leaf, so that the index reads AX whether looking at both leaves together, or at the lower one only.

The four rows of index tabs are printed in gold letters on black Russia leather. The tabs are securely fastened on both sides of each page, making a handsome and durable index.

**ARRANGEMENT.**—The book is arranged to keep a complete record of prices on a single page, the width giving sufficient room.

**SUPPLEMENT.**—An 80-page Supplement is provided to give room for supplemental quotations, memoranda, tables, &c.

THIS BOOK IS ISSUED IN ONLY ONE EDITION, PRICE, \$7.50.

## Advantages of Multiple Index Price Book.

**A SPECIAL** feature of the books is the arrangement of the index characters, which, instead of being alphabetical, are arranged with special reference to the classification of Hardware goods, each index character giving the first two or three letters of the names of Hardware articles, as shown above. The ease and convenience with which the books can be used is indicated in the following examples, taken from Book F:

For Augers,	turn to	AU	For Chisels,	turn to	CH <sub>L</sub>	For Iron,	turn to	IRO
" Parers, Apple	"	PA <sub>P</sub>	" Cutlery,	"	CUT	" Irons,	"	IR'S
" Saws,	"	SAW	" Cartridges,	"	CAR	" Shovels,	"	SH <sub>O</sub> <sub>R</sub>
" Pumps,	"	PUM <sub>N</sub>	" Rules,	"	RUP	" Grindstones,	"	GRI
" Bits,	"	BIT	" Locks,	"	LO	" Stones,	"	STO

Special care has been taken to make the classification as indicated in the index correct and comprehensive, making provision for all Hardware articles and giving sufficient space for the keeping and recording of prices. It is thought that every strictly Hardware article has its first two or three letters given, thus permitting immediate reference to it by a single motion.

It is, however, obvious if any articles are not directly designated by the index characters, that the index, being alphabetical in its arrangement, indicates the place where quotations on such articles should be recorded. The supplement, however, may be found useful for quotations on matter from the preceding pages, or to contain list prices or other matter relating to goods.

**Hardware Classification.**—A pamphlet containing a classification of the leading Hardware articles is furnished with the price books.

**Standard Lists.**—In connection with these price books a set of *The Iron Age* STANDARD HARDWARE LISTS can be used with great advantage. Price 25 cents.

These price books, which have been prepared by R. R. Williams, Hardware Editor of *The Iron Age*, are presented to the attention of Hardware men in the confidence that they will be found a most valuable aid in keeping track of prices.

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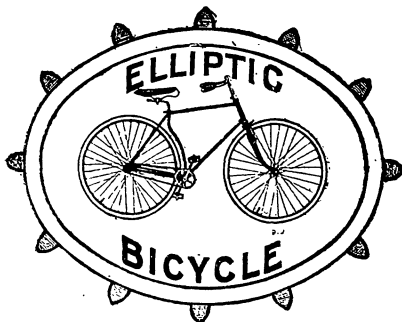
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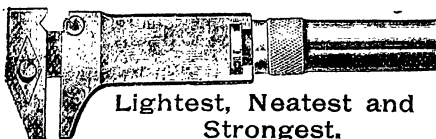
1-4 Mile, flying start,	:26 1-5	
1-4 " standing start,	:30	ONE
1-2 " flying start,	:55 1-2	MILE,
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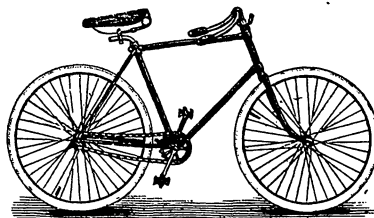
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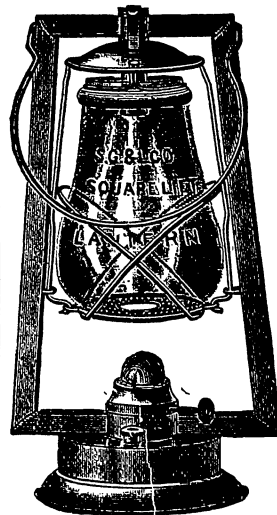
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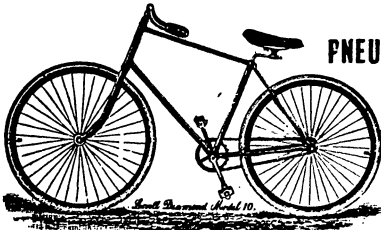
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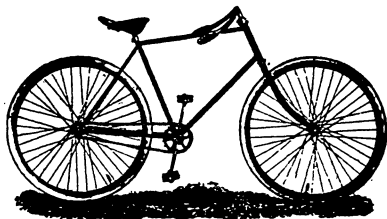


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Practically Made,  
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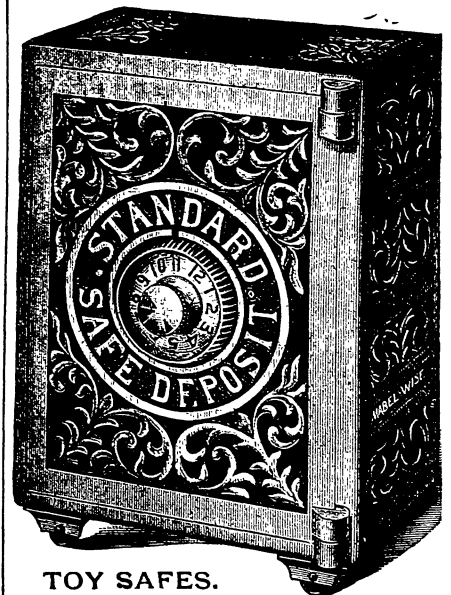
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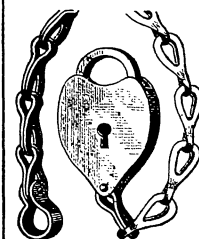
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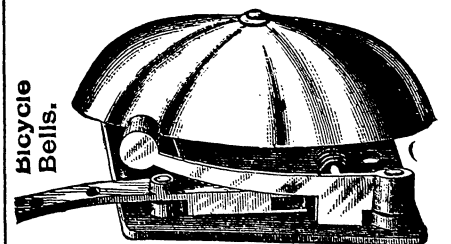


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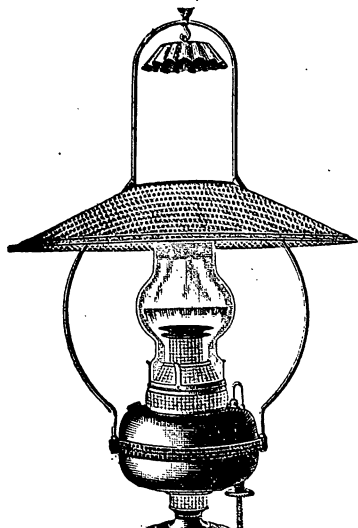
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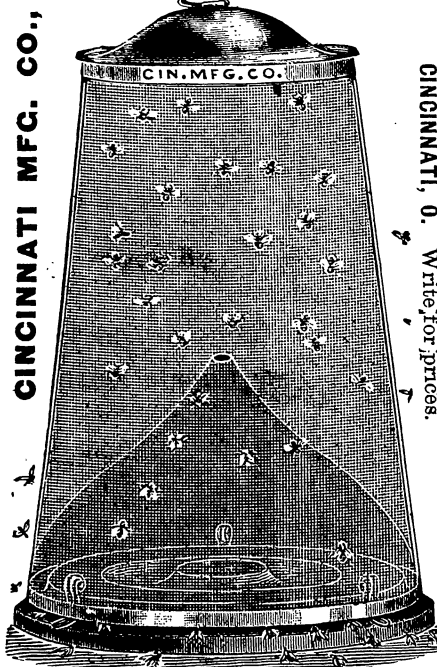
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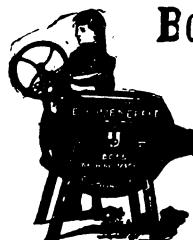
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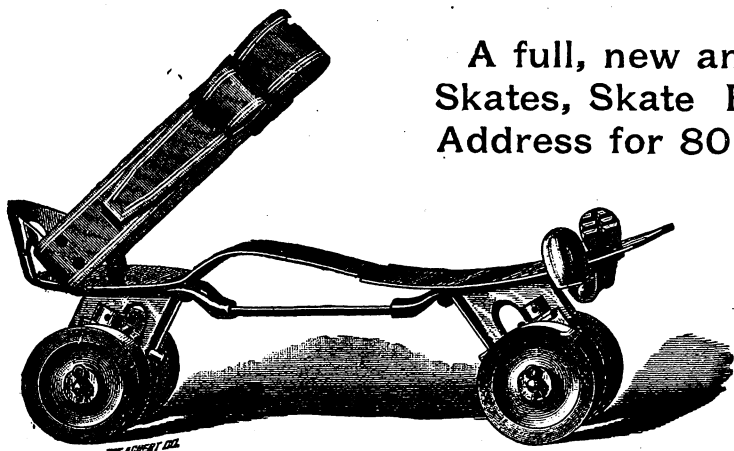
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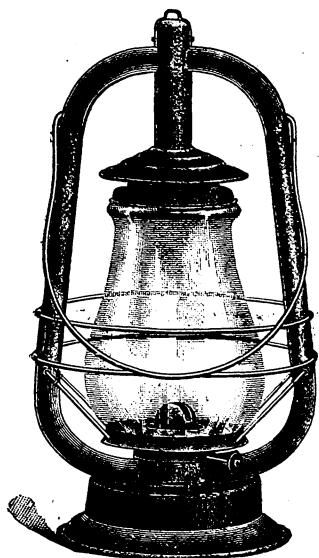
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A full, new and complete stock of Roller Skates, Skate Repairs and Rink Supplies. Address for 80 page catalogue and prices,

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Always give way to an opposing irresistible force.  
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Good goods and low prices form a powerful combination.

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is a great lantern. It stands more wind and storm than any other. We say without reservation the "Surprise" and the "Surprise Dash" lanterns are two of the best lanterns in the world. Besides these we carry the entire line. These are the goods, write for the prices. We can do you a real nice turn. Don't forget that we are the sole manufacturers of the "Surprise."

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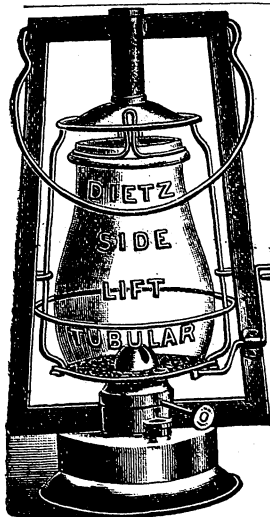
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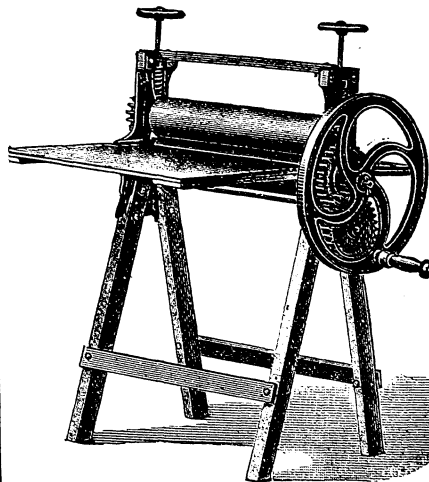
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cork-screw and fulcrum  
position to pull cork.

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Better Work than Hand-work.

**SAVES** all the fuel.  
two-thirds the work.  
Keeps the linen whiter.  
We Guarantee Every Machine.

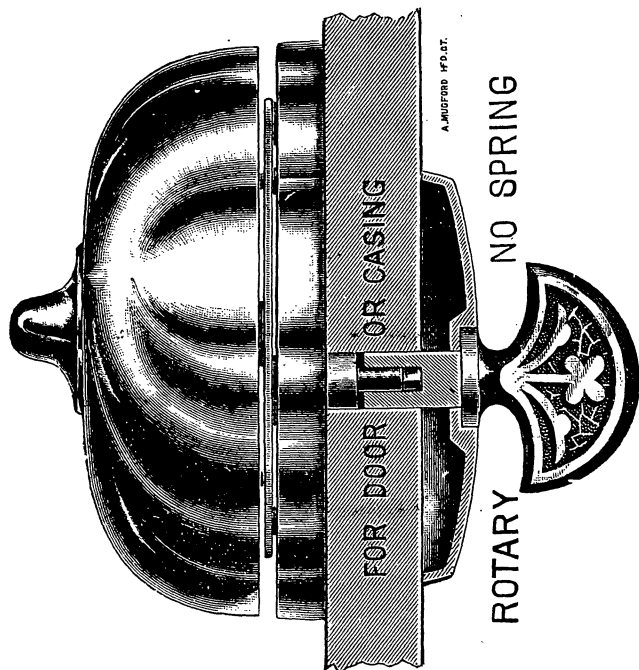


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## ELECTRICAL RESULTS.

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Simply turning the knob about ONE-FOURTH IN EITHER DIRECTION produces about TEN CLEAR, FULL tones, which, though not startling or annoying, can be better heard all through the house than any bell ever made to imitate Electrical Results.

### 3 INCH.

No. 91, - - - - - Nickel Plated.  
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PER DOZEN, \$20.00

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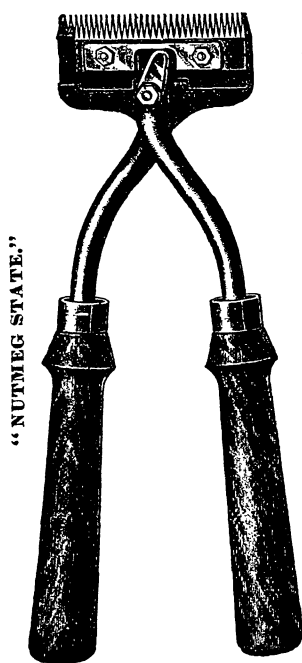
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Of all sizes, complete with tools, for Hardware, Toy Notion and Variety trades.  
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Also Machinists' Tool Chests, empty. Illustrated Catalogue and prices furnished on application.

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### STEVENS' "FAVORITE" RIFLE.



**Made for the 22 or 25 Rim Fire Cartridge.**

**WEIGHT, 4 1/2 POUNDS.**  
**22-INCH BARREL.**  
**LEVER ACTION LIKE SHARPS.**  
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**IT IS SIMPLY IMPOSSIBLE**  
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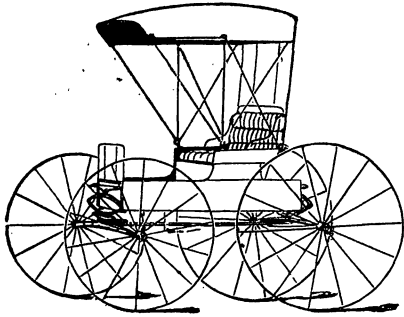
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# The Hardware Trade

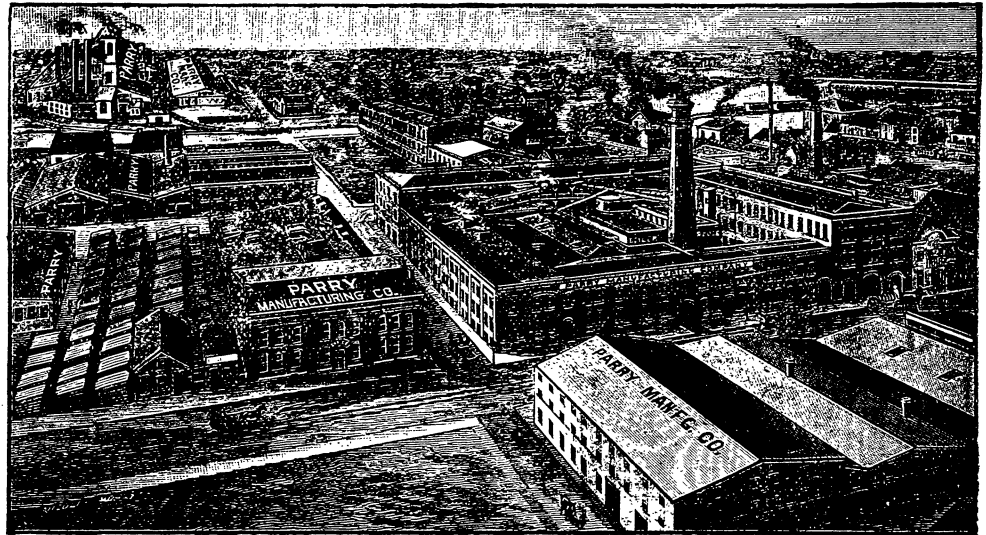
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Vehicles.



## Just Published.—THIRD REVISED EDITION. THE IRON AGE STANDARD HARDWARE LISTS FOR USE IN PRICE BOOKS.

Compiled by R. R. WILLIAMS, Hardware Editor of The Iron Age.

This pamphlet contains the principal standard Hardware price-lists in as clear and compact an arrangement as possible, so as to permit their being advantageously cut out and inserted in the price book. In order to make them adapted to this use they are printed on thin and tough paper of fine quality and on only one side of the paper.

### Saucepans and Round Boilers.

Pints.	Plain	Turned.	Third or End.
1	\$0.30	.35	.39
1½	.32	.37	.44
2	.35	.39	.48
3	.42	.47	.56
Quarts.			
2	.50	.56	.63
2½	.53	.59	.68
3	.55	.62	.73
4	.60	.68	.84
5	.65	.75	.96
6	.70	.81	1.11
7	.75	.84	1.21
Gallons.			
2	.85	.96	1.31
2½	1.05	1.18	1.56
3	1.20	1.35	1.70

### Wrenches.

Inches.	6	8	10	12	15	18	21
Black...	\$9.00	\$10.00	\$12.00	\$14.00	\$24.00	\$30.00	\$36.00
Bright..	10.00	11.00	14.00	16.00	26.00	32.00	38.00

The success of the effort to give the lists in small space is illustrated in many of the lists, in which a clear and condensed arrangement is secured. For instance, the wrench list occupies but 3 inches by ¼ inch, while the list of Stove Hollow Ware, in very small space, gives the list prices on a large and important line of goods which often occupy several pages in catalogues. In several lists, such as Strap and T Hinges and Butts, a new arrangement is adopted, which is regarded as presenting these lists in a very convenient as well as condensed form.

As is obvious from the lists herewith reproduced, the shape and size of the different lists varies greatly, the aim being to give each list the smallest and most convenient arrangement possible. None of the lists are, however, more than 3½ x 6 inches in size, very few of them being as large as this and most of them very much smaller. In use it is intended that they shall be trimmed closely before they are inserted in price books,

when they may be attached either by one edge close to the hinge of the book, as will, perhaps, be most convenient with the larger lists, permitting the use of the entire page for memoranda, or the smaller lists may be pasted on the page in connection with the entries in regard to discounts, freights, &c. Many of the lists are so compact in arrangement as when thus inserted to leave ample room for recording quotations.

Some merchants use this pamphlet for reference, checking off invoices, etc., as it gives the leading lists in a more convenient form than they can otherwise be obtained. The lists are, however, intended primarily to be cut out

and inserted in price books, and can be used in connection with any of The Iron Age Hardware Price Books.

That the Standard Hardware Price Lists meet a want of the trade is evident from the fact that a Third edition is already called for.

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**DAVID WILLIAMS, Publisher and Bookseller, 96-102 Reade Street, N. Y.**

### Stove Hollow Ware.

Ground and Unground.

POTS, KETTLES, ETC. (CAST IRON.)						
No.....	6	7	8	9	10	11
Pots.....	\$0.65	.75	.85	1.00	1.25	1.75
Kettles.....	.55	.65	.70	.85	1.00	1.40
T Kettles.....	.75	.80	.90	1.00	1.25	....
Spiders.....	.27	.30	.35	.40	.50	.60
Griddles Round	.22	.25	.27	.30	....	....
" Long..	.40	.50	.60	.75	....	....

### SCOTCH AND YANKEE BOWLS.

No .....	1	2	3	4	5	6
Scotch Bowls..	\$0.35	.40	.45	.50	.60	.70
Yankee Bowls.	.35	.45	.55	.65	.75	.90

### Glue Pots.

Tinned or Enameled

No. 4/0....	\$4.50	No. 2 .....	\$8.40
3/0.....	5.00	3 .....	10.26
2/0.....	5.50	4 .....	12.42
0 .....	6.00	5 .....	14.58
1 .....	6.75	6 .....	16.94

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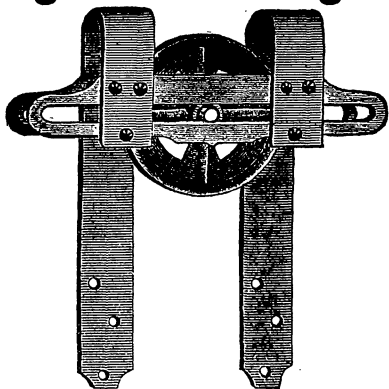
**HARDWARE, CUTLERY, TOOLS**

—AND—

**RAILWAY SPECIALTIES.**

Headquarters for

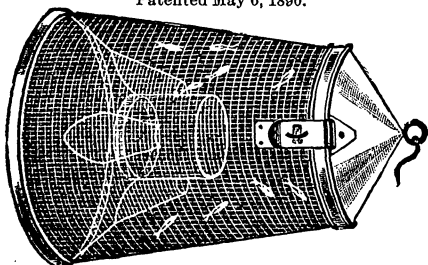
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**CHICAGO****Big Twin Hanger.**Also a Complete Line of this  
Class of Goods.

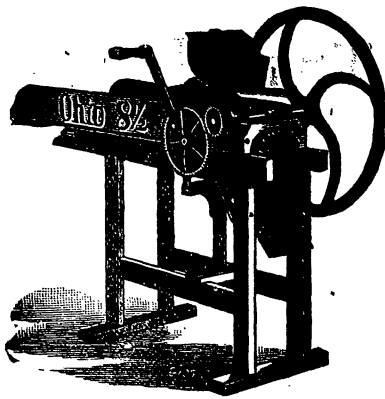
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**Chicago Spring Butt Co.,  
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Patented May 6, 1890.

**LITTLE DAISY MINNOW TRAP.**A sure thing for good, live minnows. Will  
last a lifetime. Price, single trap, \$3.50. Liberal  
discount to the trade.

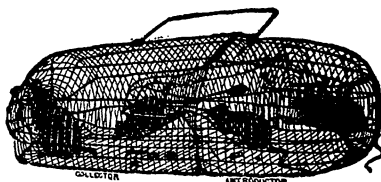
Illinois State Fish Commission,  
Office of S. P. Bartlett, Sec'y,  
QUINCY, ILL., Jan. 19, 1892.)  
Messrs. Cochenour & Wilson, Olney, Ill.  
After two years' use of your "Little Daisy Minnow  
Trap" I find that it does its work well and satisfac-  
torily. It is a source of great gratification to me to  
have fresh, lively minnows when I want them, and  
these your trap furnished me. I can cheerfully recom-  
mend it to anglers as a valuable addition to their  
outfit. Yours respectfully,  
P. BARTLETT, Sec'y Ill. State Fish Com.  
**ED. C. WILSON, Exclusive Manufacturer,  
OLNEY, ILL.**



**THE "OHIO" Feed and Ensilage**  
Cutters and Carriers are the best.  
By reason of wide open throat (being  
full width of cutting surface, all sizes),  
and improved feeding device, our  
machines have greater capacity than  
others.

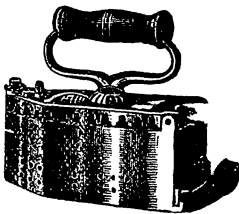
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and Tailors. Send for Circulars and Sample Irons.  
Agents wanted everywhere

**THE QUEEN ANNE SCREEN CO.,  
Burlington, Vt.,**

MANUFACTURERS OF

**Improved Adjustable Window Screens.**  
**THE QUEEN ANNE.** With box panels; the only  
screen made and finished alike on both sides.  
**THE EUREKA.** The best cheap extension screen  
on the market.  
**SCREEN DOORS.** Finished all ready to hang.  
Sticks, Corners, Improved Frames, &c.  
Write for circular and Price-list.

**COMMON MOUSE TRAPS  
BEST FOR USE!****Ripley Mfg. Co., Unionville, Conn.**

Porcelain-Lined Lemon Squeez-  
ers, Steak Hammers, Boot Jacks,  
Magnetic Tack Hammers, Mal-  
lets, Bung-Starts, Hand Screws,  
Beacon Hill Pat. Mouse Traps,  
Sunny-Side 2 lb. Lap Board.



## Dangler Electric Torches

FOR  
**GASOLINE  
OR  
OIL**  
14 JETS OF LIGHT

3 to 6  
INCHES  
LONG.

FOR lighting manufacturing establish-  
ments, such as Rolling Mills, Found-  
ries, Machine Shops, Engine Rooms,  
&c., &c., with a convenient, portable  
brilliant, steady light, and by cheaper  
means than by Coal Gas.

SOLE MANUFACTURERS,

**The Dangler Stove & Mfg. Co  
Cleveland Ohio.**

## JOHN LOYD,

Machine Knives, Shear Blades,  
Presses and Dies.

Nos. 558 to 562 Water Street, New York.

## ACME CUTTING TOOLS.

Made in all Sizes.



**SOLID STEEL ACME PLIER  
AND WIRE CUTTER.**  
Made with cutters of best steel.

**ACME CUTTING NIPPER.**  
Jaws of choicest Tool Steel, dove-  
tailed into the head, making it as  
strong as solid steel.

**HIGGANUM HARDWARE CO., HIGGANUM, CONN.**

New York Office, 18 Cliff Street.

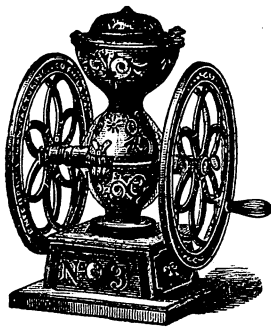


# THE ENTERPRISE M'FG CO. OF PA.,

THIRD AND DAUPHIN STREETS, PHILADELPHIA.

## COFFEE MILLS.

24 Sizes.



\$1.25 to \$100.00.

## FRUIT PRESS.

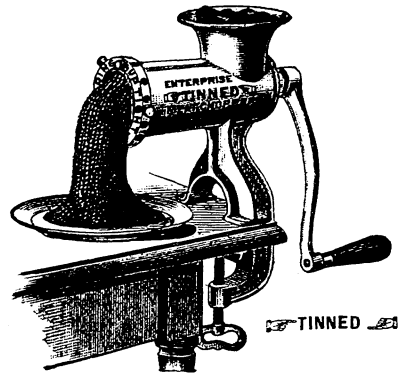
4 SIZES.



No. 24, Price, \$3.00

## MEAT CHOPPERS.

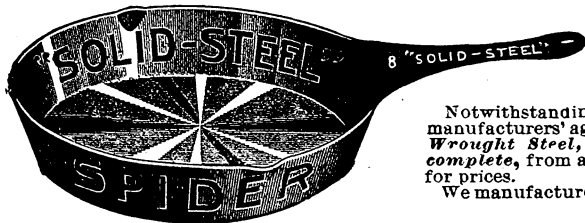
15 Sizes.



\$2.00 to \$275.00.

FOR SALE BY THE HARDWARE TRADE. SEND FOR OUR LATEST CATALOGUE.

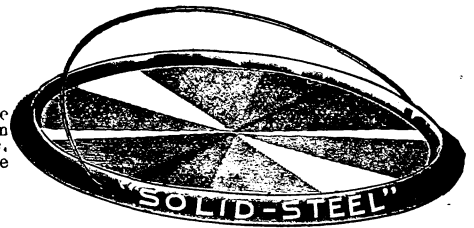
## "SOLID-STEEL" SEAMLESS HOLLOW WARE.



No Seams, no Rivets in "Solid-Steel" Ware.

BRILLIANT FINISH.

Notwithstanding the claims made by some manufacturers' agents, our spiders are made from Wrought Steel, Without Seams or Rivets, complete, from a single piece of metal. Write for prices. We manufacture our own goods.



Made either with Balls or Solid Handles.

The Cleveland Stamping & Tool Co., Cleveland, O.

We are in shape to figure on light and heavy stamping, and in addition to the above we build Dies and Stamping Machinery.

### ADJUSTABLE KNIFE

DIRECTIONS  
LOOSEN  
BOLTS.  
SET KNIVES FOR DESIRED CUT.  
(TIGHTEN BOLTS)

### KRAUT CUTTER

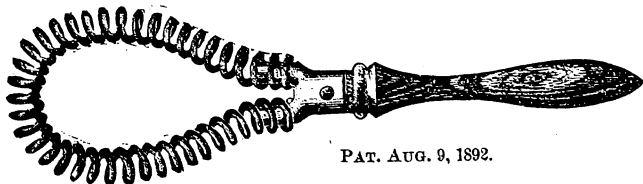
PATENT APPLIED FOR.

PERFECT.  
SIMPLE.  
HANDSOME.

INDIANAPOLIS, IND.

**TUCKER & DORSEY MFG CO.**

## THE BOSS DUST BEATER.



PAT. AUG. 9, 1892.

NEAT, DURABLE, AND DOES THE BUSINESS.

For removing dust and filth from Clothing, Upholstered Furniture, Rugs and Carpets it is just the thing. Will raise the nap and so improve the appearance. Will not, like other Dust Beaters, leave marks, nor tear the fabric. The coil is of steel wire secured in a malleable iron socket and attached to an enameled wooden handle. Just what everybody wants.

Retail Price, 25 Cents. Sent by Mail, 35 Cents.

**PEABODY & PARKS,**  
Manufacturers, TROY, N. Y.

## JACKETED KETTLES. HOLLOWARE.

THE STUART & PETERSON CO.,  
Philadelphia, Pa., and Burlington, N. J.

**American Stamping Co.,**

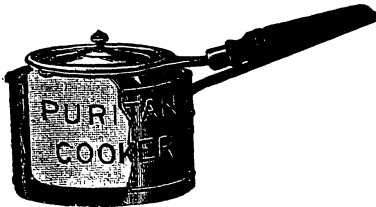
Manufacturers of

All Kinds of Tinware and Sheet  
Metal Goods.

N. Y. Office and Salesroom, 104 & 106 John St.  
Factory, 103 to 119 N. 3d St., Brooklyn, E. D., N. Y.

**"PURITAN"**

COOKERS, COFFEE POTS AND  
OTHER SPECIALTIES.



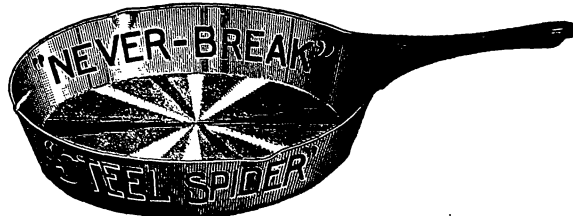
Cooks Quicker than any other  
Porcelain Rice Boiler made.

**"NEVER-BREAK"**

Wrought Steel Spiders

Wrought Steel Griddles, Kettles, Stew Pans, Stew Pots, Maslins,  
Scotch Bowls, Hotel Sauce Pans, &c.

MIRROR POLISHED—TINNED—PORCELAINED.



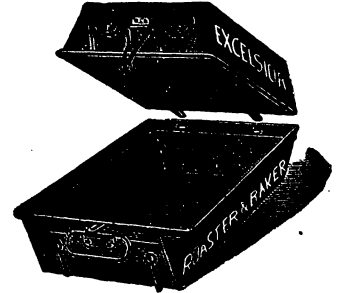
"MIRROR POLISH," the only Perfect Plain Steel Finish

SOLE MANUFACTURERS

**THE BRONSON SUPPLY COMPANY,**  
CLEVELAND AND NEW YORK.

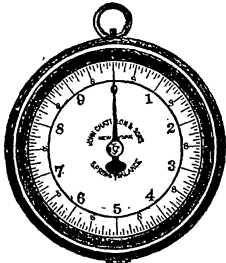
**"EXCELSIOR"**

Roasting and Baking Pan.  
PLANISHED and PLAIN STEEL.



# John Chatillon & Sons,

85, 87, 89, 91, 93 CLIFF ST., NEW YORK.



ESTABLISHED  
1835.

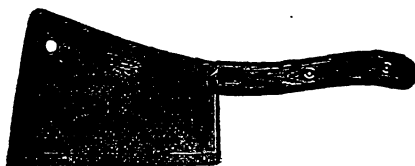
SEND FOR  
PRICE LIST.



MANUFACTURERS  
OF  
**SCALES**  
—AND—  
BUTCHER TOOLS.

Sole Agents for

Foster Bro.'s Butchers' Cutlery.



John Chatillon & Sons, N. Y.

**A. S. HENN & CO.,**

Manufacturers of

Hardware Specialties, Can Open-  
ers, Pocket Wrenches, Mincing  
Knives, Clothes Line Pulleys, &c.

Send for Catalogue.

NEW HAVEN, CONN.



# Laundry

Conveniences such as the  
American Washer recommend  
themselves. There are others, but it's best.  
The user does not abrade the skin of the  
hands in washing, nor is the use of strong  
alkalies necessary to produce clean and  
wholesome linen when used. Don't tear.

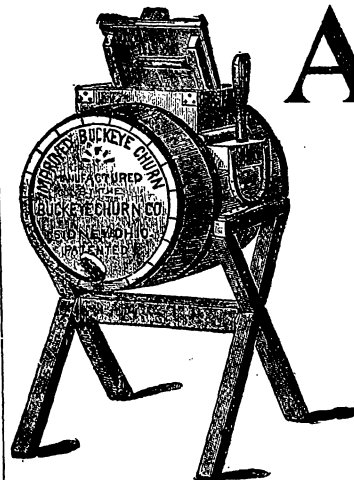
**Union Manufacturing Co.**

WM. PETER, Owner,

TOLEDO, O.



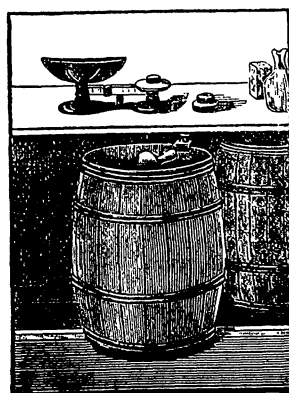
The "American."



# A Buckeye

Churn is the best for making butter quick,  
cleanly and rapidly. There are others,  
but none its equal. A child delights in  
operating it. Order a sample. See if it  
doesn't sell quick. Our Queen Washing  
Machine is another excellent household  
adjunct, cheap but good. Agencies given.  
Write

**BUCKEYE CHURN COMPANY,**  
SIDNEY, OHIO.

**Wonder Somebody Didn'**

THINK OF IT BEFORE!

**The Perfection Barrel Swing.**

A simple device, readily attached to any Pantry,  
Cupboard, Broad Shelf or under the counter in a Gro-  
cery or Hardware Store, for swinging a barrel to get  
at the contents easily. Price, \$1. All Hardware  
dealers will supply them.

MANUFACTURED BY

**THE LEAVITT MACHINE CO.**

ORANGE, MASS.

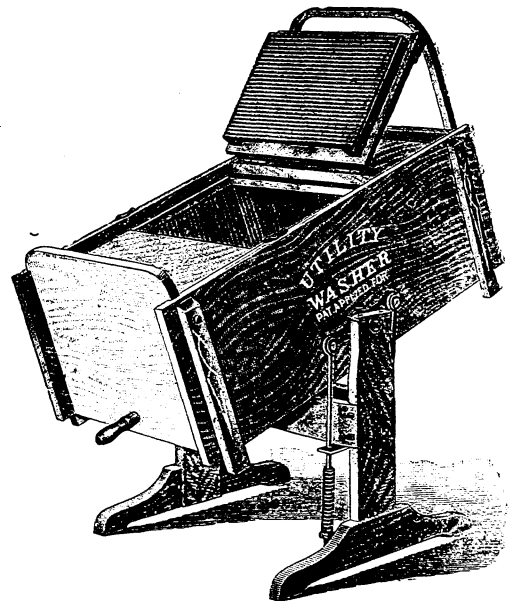
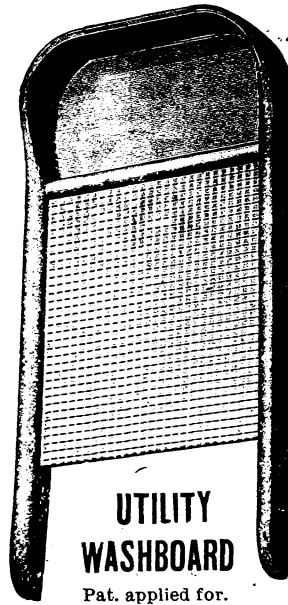
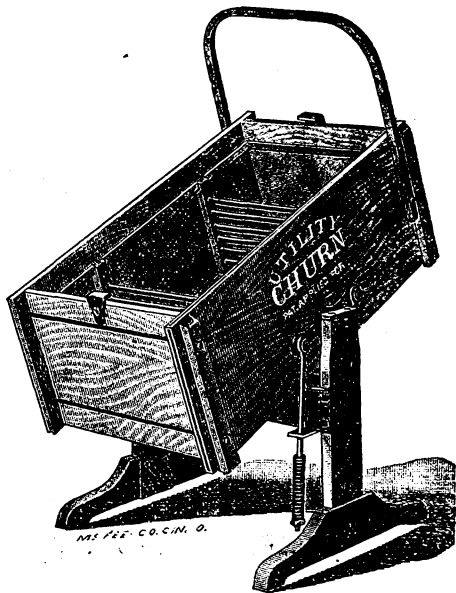
# The Utility

## of an invention

# Is its Usefulness

The "Utility" Washer, "Utility" Churn and "Utility" Washboard exemplify this in the highest degree. They are each the best of their kind and really recommend themselves. Write for printed matter and prices.

The Olds Wagon Works,  
Fort Wayne, Ind.



**CATHEDRAL GONG  
MONEY DRAWER  
COMBINATION LOCK**

OUR PRICES AFFORD A  
GOOD MARGIN FOR  
PROFIT.

**THE "SURPRISE" SELF-SETTING RAT TRAP. PATENTED**  
**BEST AND SIMPLEST TRAP IN THE WORLD**

AUTOMATICALLY SET WITH THE HANDS OR FOOT.

**IMPROVED COFFEE MILLS**

**FAST GRINDERS  
QUICK SELLERS**

**THE SUN MANUFACTURING CO.**  
SUCCESSORS TO  
**THE JOHN M. WADDELL MFG. CO.**  
**GREENFIELD, OHIO, U.S.A.**

**CASH REGISTERS** **WOODENWARE** **COFFEE MILLS**  
SPECIALTIES

OUR LINE OF GOODS ARE UNIQUE AND NOVEL. THEY OUTSELL OLD TIMERS  
WRITE FOR OUR NEW ILLUSTRATED CATALOGUE AND PRICE LIST.

OUR PRICES AFFORD A  
GOOD MARGIN FOR  
PROFIT.

OUR LINE OF GOODS ARE UNIQUE AND NOVEL. THEY OUTSELL OLD TIMERS  
WRITE FOR OUR NEW ILLUSTRATED CATALOGUE AND PRICE LIST.

OUR MILLS ARE  
LEADERS



# Say! As a Dealer

Have'nt you handled a variety of washing machines; some poor, some not much better and some of the best? And now you're looking for perfection. This is found only in

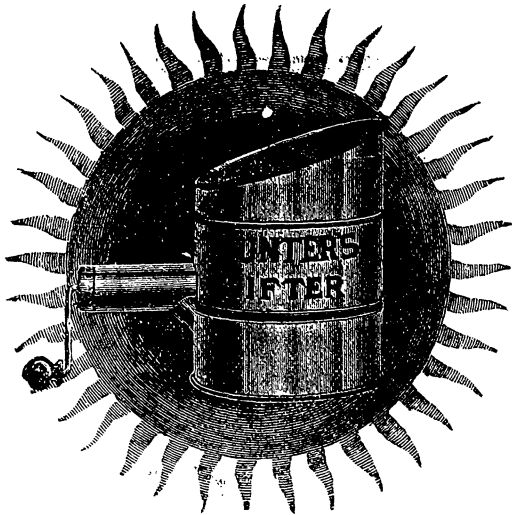
**NEFF'S**

Order one and see for yourself if it's not so.

**W. H. NEFF,**

- -

**COWAN, IND.**



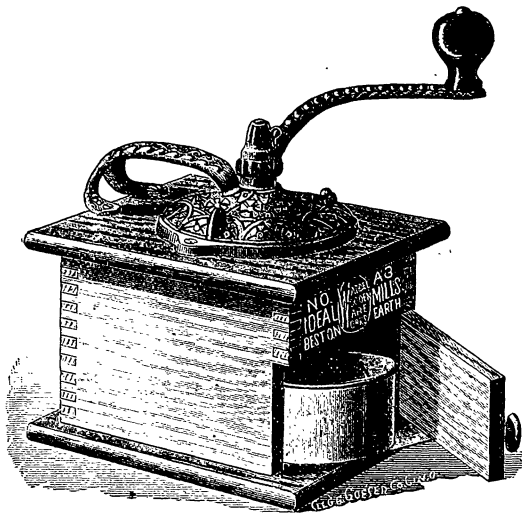
# Imitations

of the famous Hunter's Sifters are now plentiful, the fact, nevertheless, is that there's but one genuine Hunter Sifter, that's the one we are making and which we ask you to buy.

—ADDRESS—

**FRED J. MEYERS MFG. CO.,**  
COVINGTON, KY.

## "BIG W. W. W. W. FOUR."



A certain company are claiming to be "sole manufacturers of Waddel's Coffee Mills," ("If you see it in the sun its so"). The statement is designed to mislead the trade. The old line of Waddel's Coffee Mills, which have been on the market the past five years, are not manufactured by us. We are making a new line of Coffee Mills which are guaranteed to grind twice as fast as similar goods, and each mill is labeled under a trade-mark "Ideal Coffee Mills manufactured by Waddel Woodenware Works; best on earth." Specify the new goods and order "Ideal Mills," and our word for it, you will not make a mistake. Address plainly

**Waddel Woodenware Works or "4 W.,"**  
Greenfield, Ohio.

MANUFACTURERS OF

**CASH REGISTERS, MONEY DRAWERS, COFFEE MILLS, RAT TRAPS and NOVELTIES.**



## PROFIT MAKING

articles. Something every dealer is looking for. The Anthony Wayne Washer is one. You can readily prove this by ordering a sample machine. You won't have to sell it—it sells itself.

**THE ANTHONY WAYNE MFG. CO., - Ft. Wayne, Ind.**

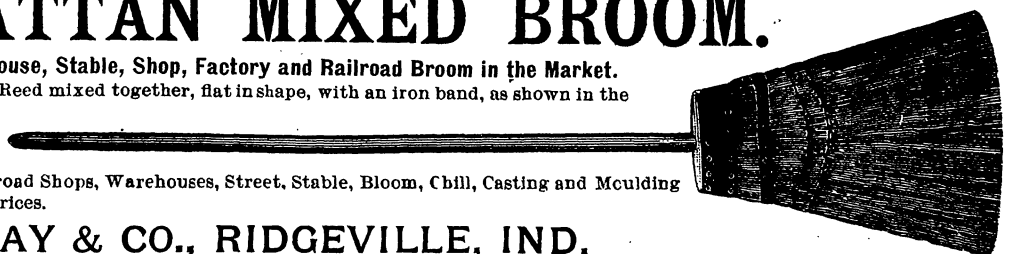
## No. 4 RATTAN MIXED BROOM.

The Best Warehouse, Stable, Shop, Factory and Railroad Broom in the Market.

Made of Broom Corn and Rattan Reed mixed together, flat in shape, with an iron band, as shown in the cut, making it solid, substantial, and stiff, for handling the heaviest dirt. Will last longer than any other similar broom.

Brooms and Brushes for Railroad Shops, Warehouses, Street, Stable, Bloom, Chill, Casting and Moulding purposes a specialty. Write for prices.

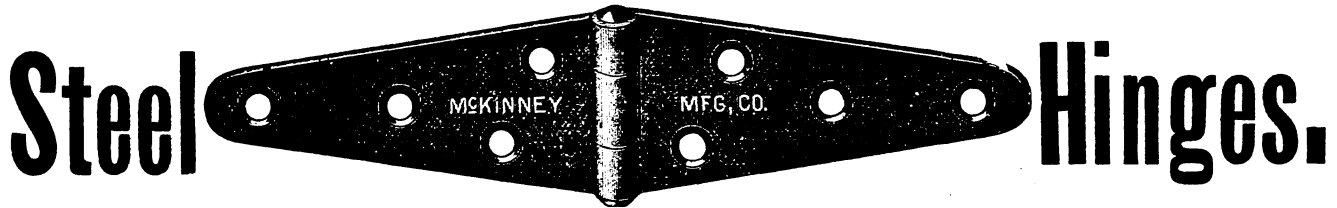
**JOSEPH LAY & CO., RIDGEVILLE, IND.**



# WE CLAIM

That one pair of our Celebrated Steel Hinges will outwear two pair of the Flimsy Invention now being forced upon the attention of the trade.

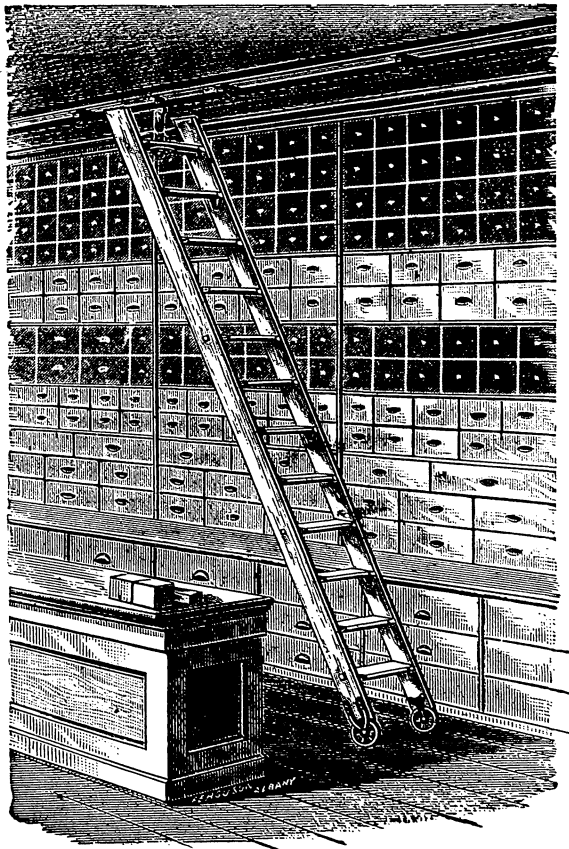
## McKINNEY MFG. CO., ALLEGHENY, PA.



SEND FOR LIST.

"NONE BETTER."

## THE "NOISELESS" STORE LADDER.

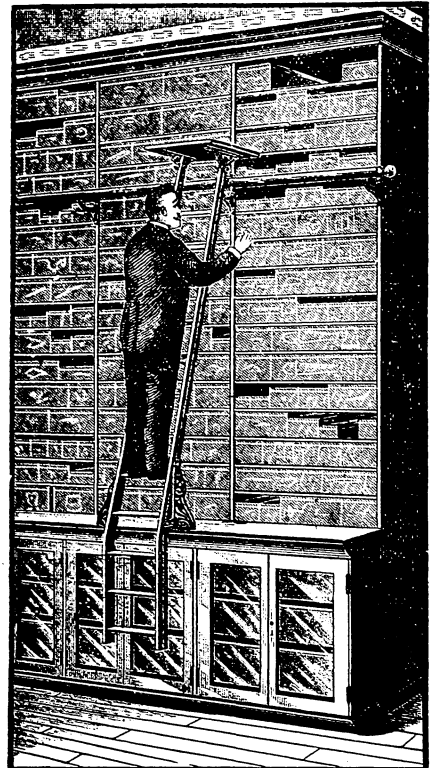


The latest and best. Perfectly noiseless. Neat in appearance.

Manufactured by

M. CROISSANT,

ALBANY, N. Y.



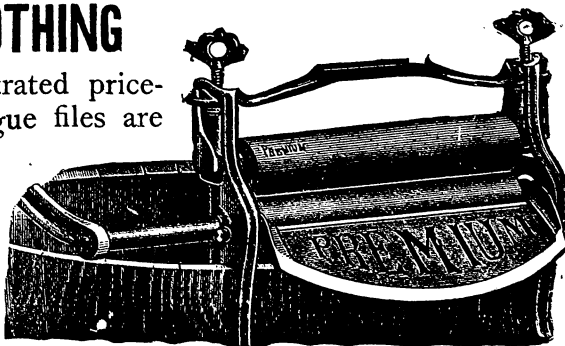
### THE BICYCLE STEP LADDER

The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made. Ladders are not Suspended, but Supported from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit. Send for illustrated catalogue and prices. See this space next week for other styles.

The Bicycle Step Ladder Co., 50 State Street, Chicago, Ills.

## IT COSTS NOTHING

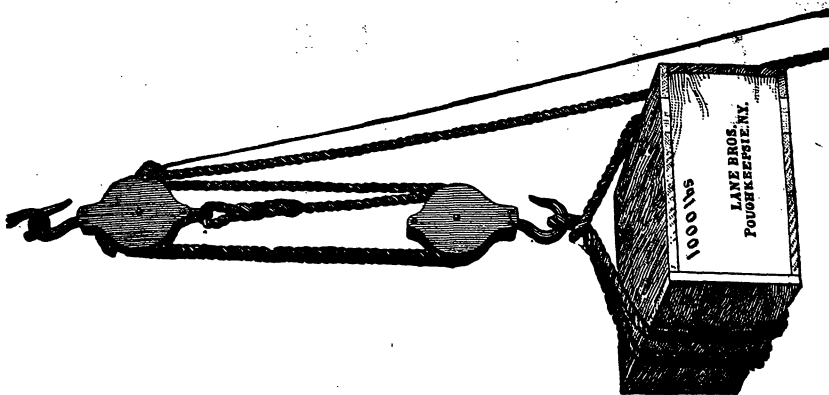
to send for our illustrated price-list, and your catalogue files are incomplete without it. Write to the Factory, Montpelier, Vt., or to our Chicago store, 68 Lake St.



COLBY WRINGER COMPANY.



N. Y. Office, 103 Chambers St., W. H. QUINN, Manager



## LANE'S SELF-LOCKING TACKLEBLOCKS,

Anti-Friction Steel Bushings,

Holds the load at any point, and always sure.

SEND FOR CIRCULAR.

For sale by the Hardware trade.

—MANUFACTURED BY—

**LANE BROS.**  
POUGHKEEPSIE, N. Y.

**"Friends,  
Romans,  
Countrymen!"**

**Lend Me Your Ears."**

So spoke Marc Antony a few years ago at the burial of the immortal Cæsar. We did not commence as long ago as our friend Antony, but we have done a power of talking. He had the ears he wanted in front of him, while we have to do our talking by proxy; but like our worthy friend Marc, we get there just the same. You have heard us talking about

### THE CRAIG LOCKS

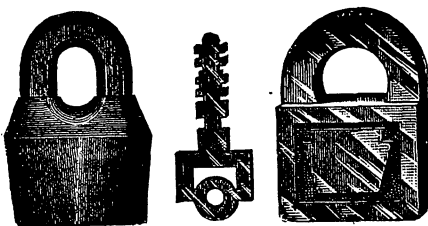
for six or eight months only, but you did not know that we had a factory and force of hands working on these locks for two years before we even attempted to sell a lock, as we intended to sell a perfect lock or none at all; so that when we guarantee these locks you can be sure we know what we are talking about. We also know what we are talking about when we say that every Tom, Dick and Harry cannot open these locks with a bent wire or anything else. When your customers want a lock that will stay locked until *they* get ready to open it, you sell them **THE CRAIG**. We guarantee the lock to you and you can guarantee it to the customer. It won't come back. You don't have to explain how it works. The directions in each box are plain enough for any child to understand. Suppose you send for a catalogue and let us get acquainted.

**KEYLESS LOCK CO., - I. A. 197 South Canal St., Chicago, Ill.**

### KEYSTONE LOCK WORKS,

—Established 1879.—

**E. T. FRANK, Lancaster, Pa., U. S. A.**  
MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail **PADLOCKS**, in 56 grades and sizes. Key and Self-Locking. Brass, Bronze, Steel and Malleable Iron. Red, Black, Bower-Barff and Bright Brown finish. Also a full line of fine flat padlocks in Bronze and Steel. All fully described and illustrated in our new catalogue, furnished free to the trade.

**SURPLESS, DUNN & ALDER,**

General Agents, 97 Chambers St., New York.

### HARDWARE DEALERS

CAN RECOMMEND THE

### CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

MANUFACTURED ONLY BY

**"THOMAS MORTON,"**

65 Elizabeth Street,

Write for Prices.

**NEW YORK.**

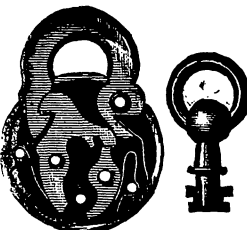
### PATENT PERFECTION PADLOCK

*Eight Tumblers. Key Turning Both Ways.*

Sizes;  $\frac{1}{4}$  inch to  $2\frac{1}{4}$  inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also,  $\frac{1}{4}$  and  $\frac{3}{8}$  inch Padlocks, opened with a common pin, in brass and nickel; for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

**AMES SWORD CO., Chicopee, Mass.**

Send for Price Lists and Circulars.



### Merit Always Wins.

### THE CALDWELL SASH BALANCE

Has been the standard for five years.

Write for our new catalogue of Hardware Specialties.

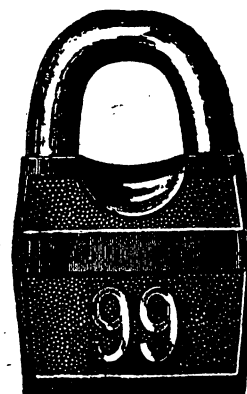
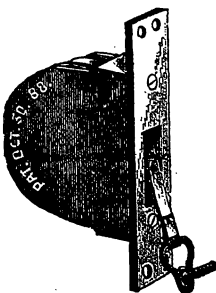
**CALDWELL MFG. CO., Rochester, N. Y.**

**READING HARDWARE CO., Agents.**

81 Reade St., New York.

514 Commerce St., Philadelphia.

73 Wabash Ave., Chicago.



Real Bronze Fancy  
Scandinavian

### PADLOCKS

Four Tumblers. Attractive Design. Plated Keys.  
Fully Guaranteed. Sold by best Jobbers. The  
most Profitable Jail Locks the Trade can buy.

No.	Keys.	Weight.	Per Doz.
99	2	4 oz.	\$6 00
999	2	8 "	8.00
12	2	"Bull Dog."	6.00
13	2	" "	8.00

Illustrated Catalogue No. 10 free to all dealers.

You are cordially invited to see the assortment we exhibit in Manufacturers Building, Chicago.

**Miller Lock Co., Lock Mfgs.,**

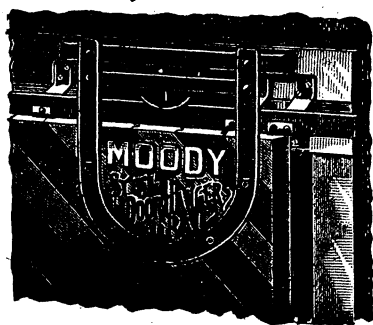
4515 TACONY STREET,



PHILADELPHIA



VICTOR MFG. CO., Newburyport, Mass.

**STEEL RAIL.**

Showing one-half set of hangers attached to door.



The Only Bracing Bracket Made.

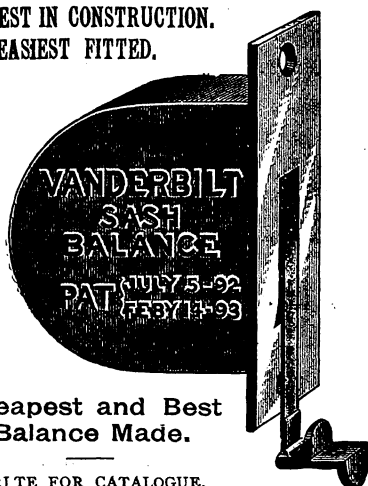
HANGERS.	PRICE-LIST.	Per Doz. pra.
No. 5, to run 6 feet, 3 1/4 in. wheel,	-	\$10.00
No. 6, to run 10 feet, 4 1/4 in. wheel,	-	15.00
No. 7, to run 15 feet, 5 1/4 in. wheel,	-	22.00
RAIL, per foot.....		6 1/2 cents

**SOLID BRAIDED SASH CORDS, &c.**

Picture Wire, Bright Wire Goods, Picture Nails,  
Picture Hooks, Knobs, Chain and Wire Brads.  
Mason Lines, Chalk Lines, Clothes Lines, Spool Wire,

OSSAWAN MILLS CO., Norwich, Conn.

SIMPLEST IN CONSTRUCTION.  
EASIEST FITTED.



Cheapest and Best  
Balance Made.

WRITE FOR CATALOGUE.

The Vanderbilt Sash Balance Co.,  
CANANDAIGUA, N. Y.

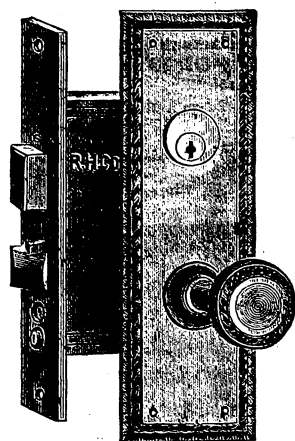
**READING**  
Hardware Co.,

MANUFACTURERS OF

**"VASSAR" LOCKS**

—AND—

Fine Builders' Hardware.



OUR  
DESIGNS  
IN  
ART  
Hardware  
ARE  
Approved  
AND  
Specified  
BY THE  
Leading  
Architects.

WAREHOUSES:

NEW YORK PHILADELPHIA, CHICAGO,  
81 Reade St. 514 Commerce St. 73 Wabash Ave.

Factories and Principal Offices:

**READING, PA.****THE GEM  
SOLID STEEL MINCER**

Single  
and  
Double Blades

Handle and Blade Formed in one piece.  
Always Clean. Indestructible.  
No Rivets to Wear Loose.  
No Wooden Handle to Shrink, Swell, Loosen,  
Split, or Fill with Rancid Grease.

MANUFACTURED BY

**PALMER HARDWARE MFG. CO.**  
TROY, N. Y.

**WILD'S  
TWINE CUTTER.**

—Patent Applied for—  
Simple and Convenient

Prices on Application.

Manufactured by

**A. L. WILD,**

252 FRIENDSHIP STREET,  
PROVIDENCE, R. I.

Motley's Adjustable Sash Holder



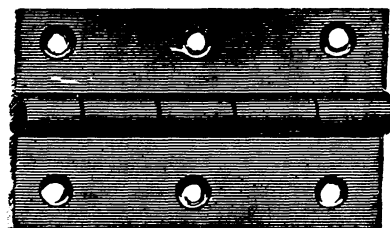
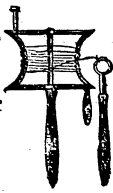
Patented Dec. 13, 1892.

For Windows, New or Old,  
In Buildings, Cars, Steamboats, Carriages, etc. Also  
for Window Screens and Sliding Blinds. Send for  
Descriptive Circular.  
P. MOTLEY, 750 S. Broad St., Philadelphia, Pa.



THE  
**KNAPP & COWLES**  
MFG. CO.,

Bridgeport, Conn.,  
Makers of a large line of  
STANDARD  
Hardware Specialties.  
SEND FOR  
K Catalogue.

**Cast Brass Butt Hinges**

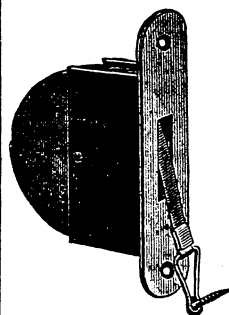
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The Best and most Practical  
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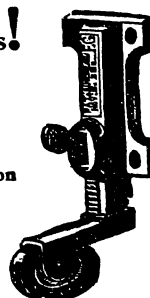
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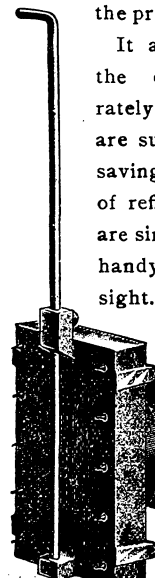
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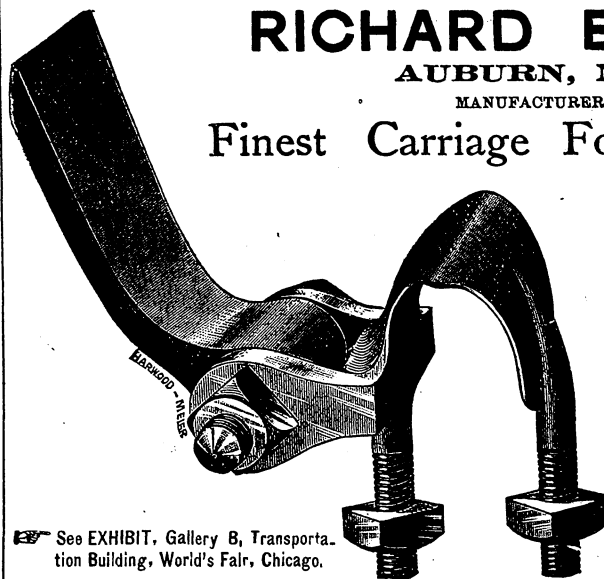
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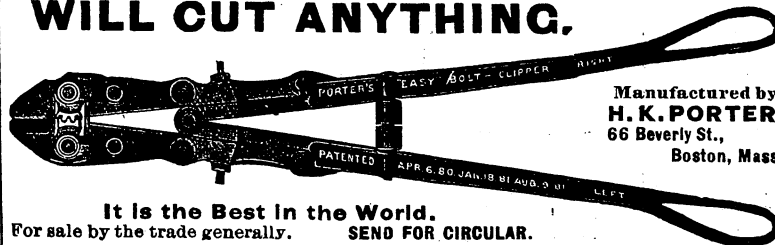
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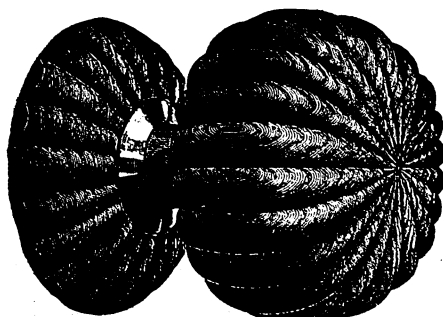
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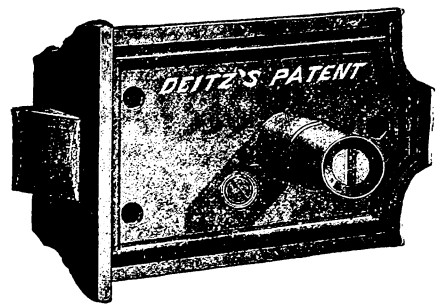
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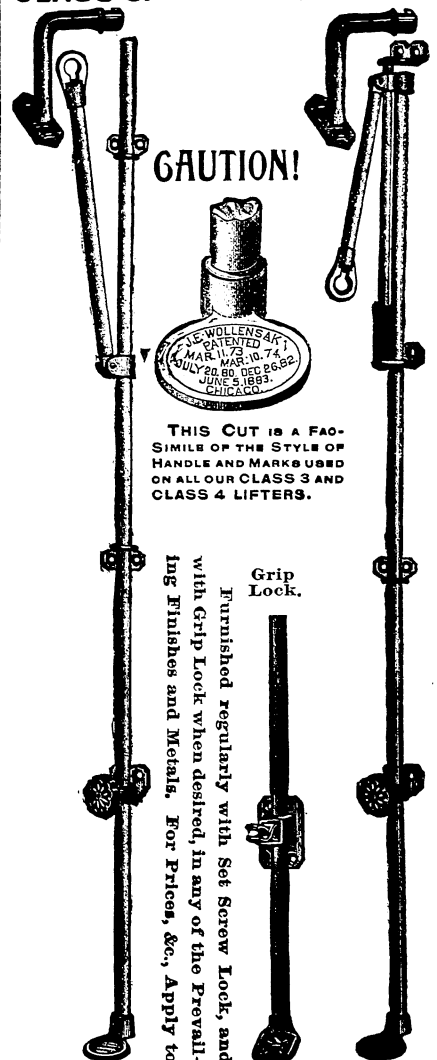
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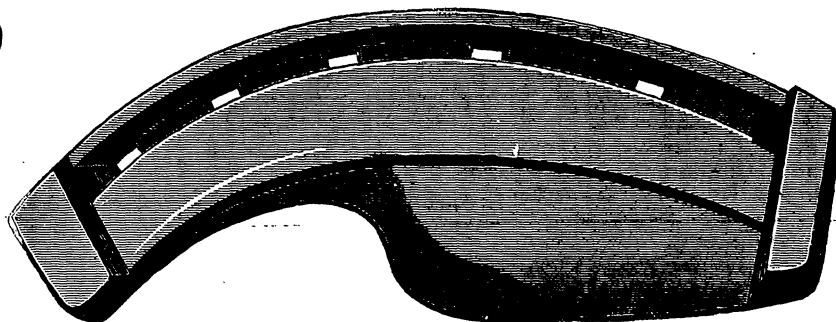
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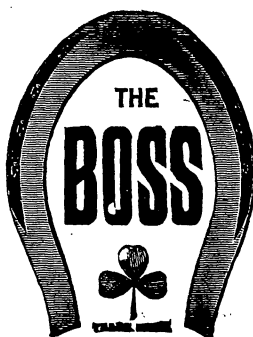
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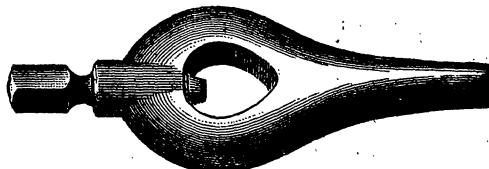
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5.....	1 1/4.....	80	16.....	1 1/2.....	2.75
6.....	1 1/2.....	95	17.....	1 3/4.....	3.25
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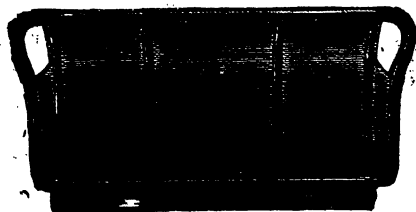
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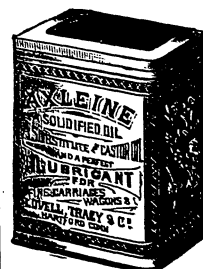
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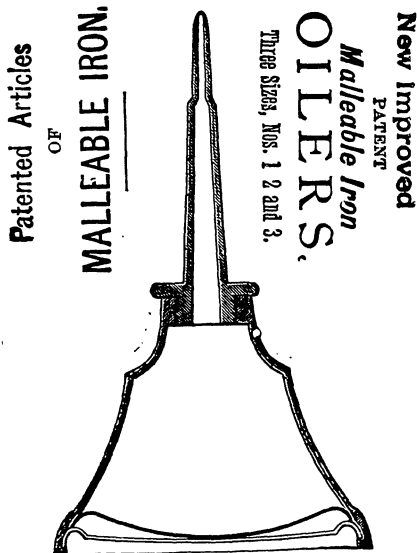


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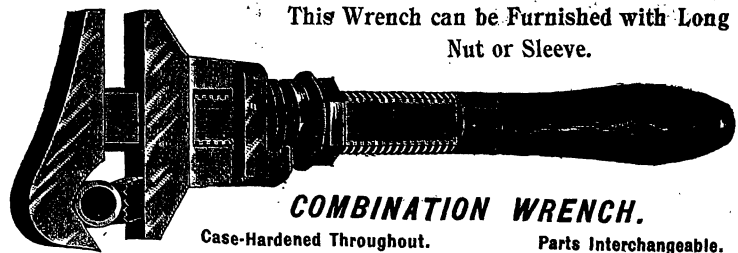
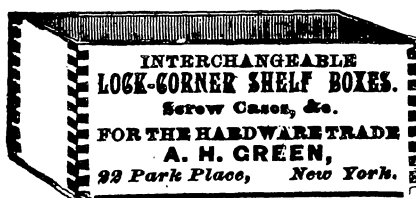
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New Pattern Heavy Screw Clamps.  
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MALLEABLE IRON CASTINGS  
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This Wrench can be Furnished with Long Nut or Sleeve.

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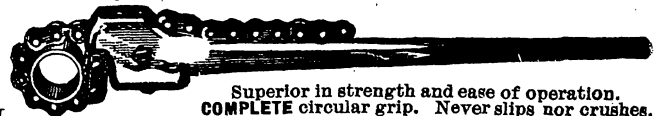
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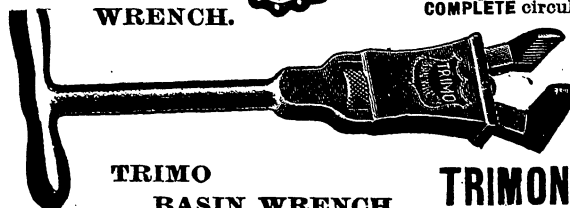
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Grips firmly without loss of motion. Releases readily. Never locks. Causes no trouble in close quarters. Does not crush the pipe.

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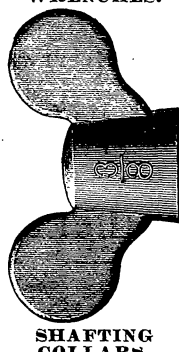


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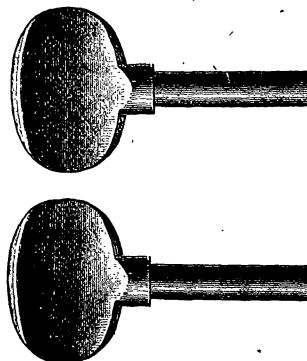
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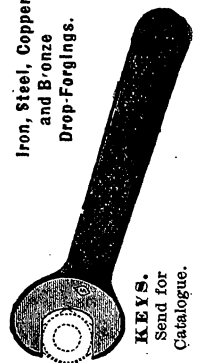
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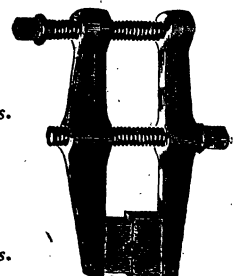


C Clamps, in 5 Sizes,  
with Openings

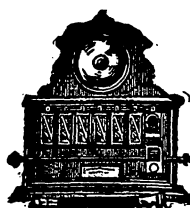
1 1/4, 2 1/4, 3 1/4, 4 1/2, 6 1/2 inches.

Machinists' Clamps, in 4 sizes,  
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1 1/4, 2 1/4, 3 1/4, 4 1/4 inches.



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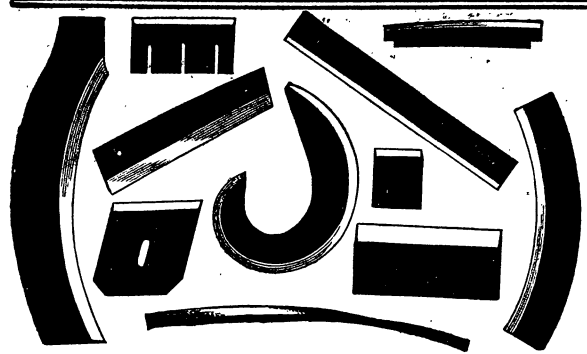
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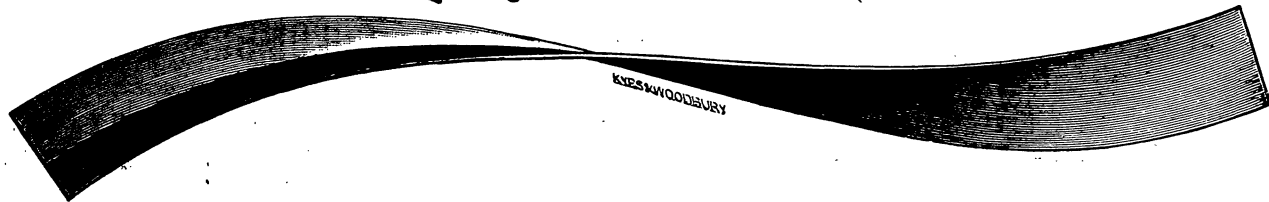
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SAMPLE 15¢.

SEAMLESS  
BRASS  
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Solid Lid  
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HINGE CANNOT  
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SEND  
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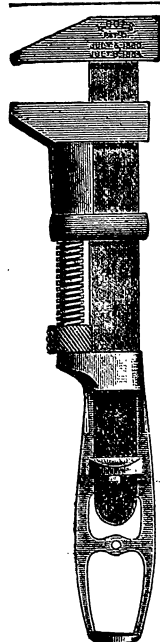
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KNIFE HANDLE  
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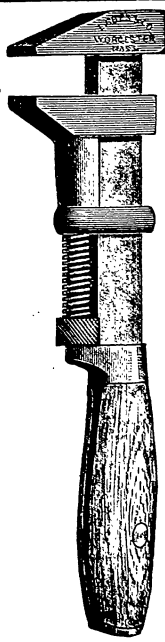
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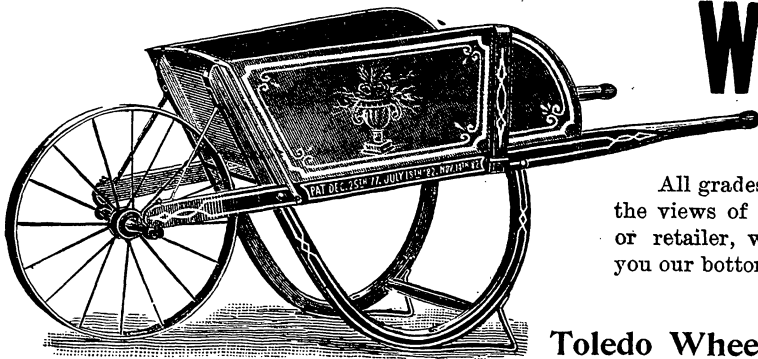
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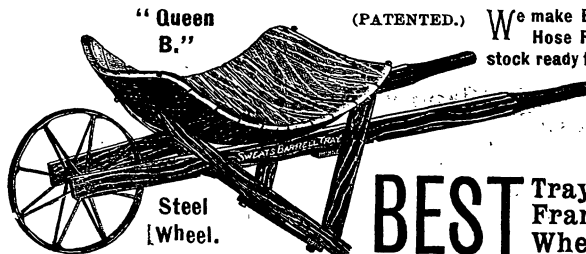


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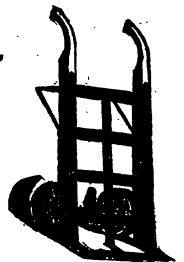
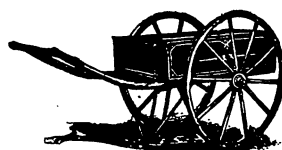
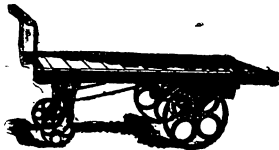
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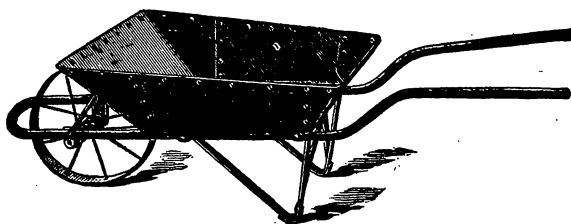
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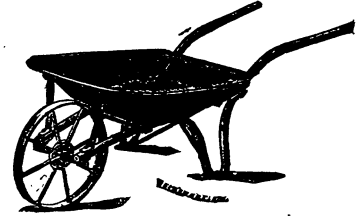
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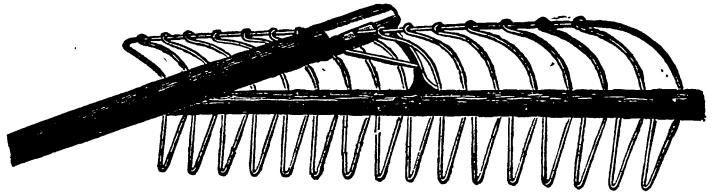
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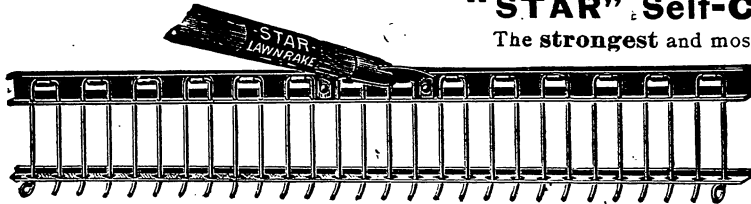
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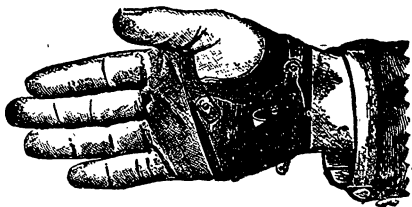
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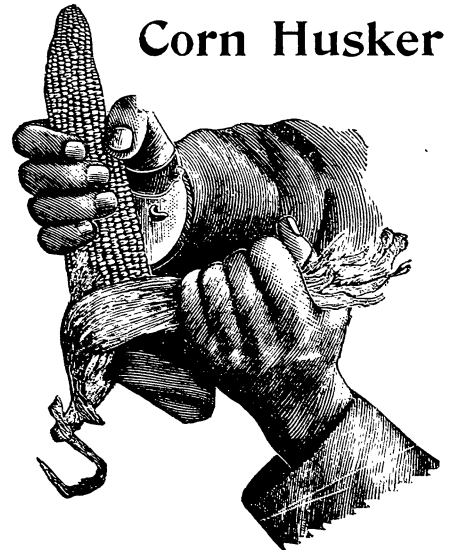
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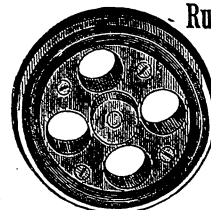
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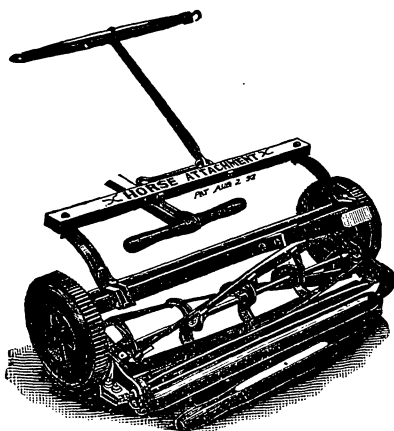
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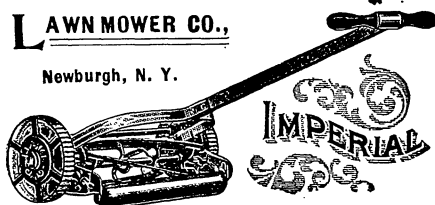
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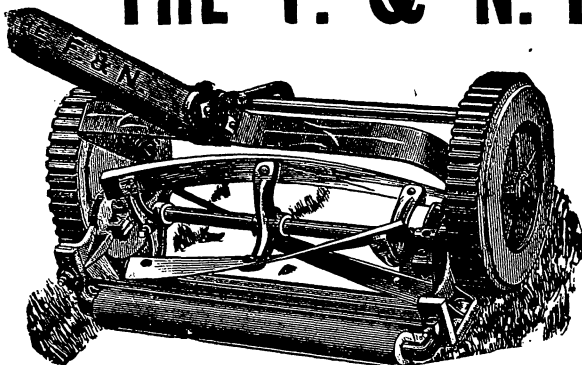
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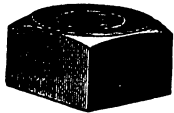
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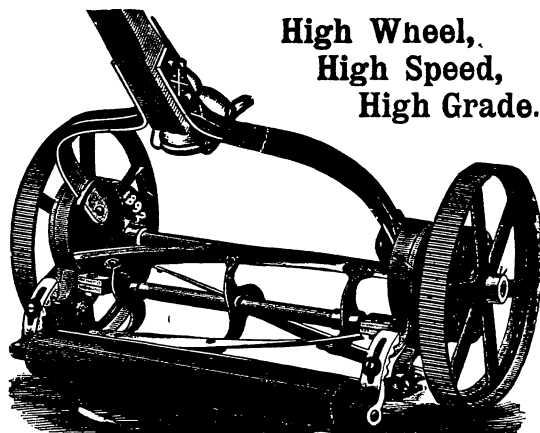
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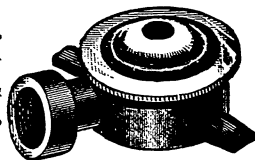


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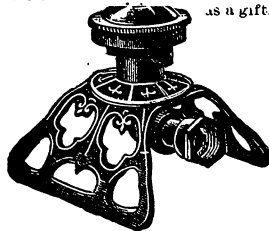


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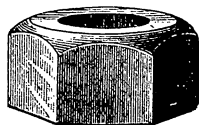
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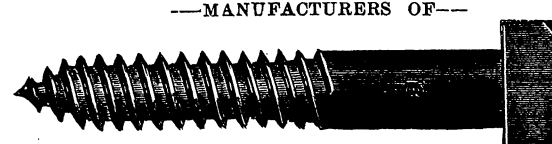
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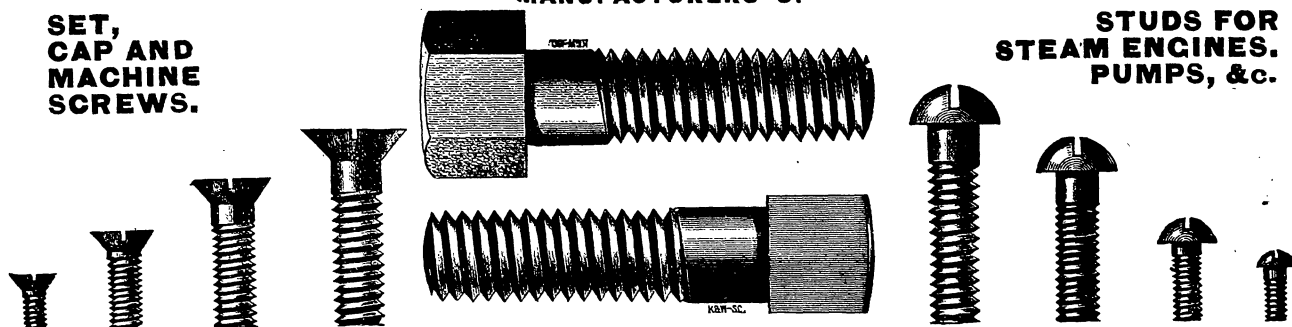
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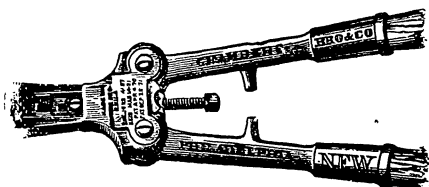
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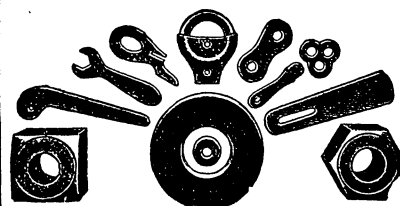
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## Boilers, Copper.

Randolph & Clowes, Waterbury, Conn.

## Boilers, Steam.

Babcock & Wilcox Co., 30 Cortlandt, Edinboro, Pa.

Fulton Steam Boiler Works and Fdry., Richmond, Ind.

Harrison Safety Boiler Wks., Phila., Pa.

Phoenix Iron Works Co., Meadville, Pa.

Follock, W. B. & Co., Youngstown, O.

Southwick Fdy. & Mch. Co., Phila., Pa.

Wetherill, Robt. & Co., Chester, Pa.

## Bolt Cutters.

Chambers Bros. Co., Philadelphia, Pa.

Howard Iron Works, Buffalo, N. Y.

Porter, H. E., Boston, Mass.

Wells Bros. Co., Greenfield, Mass.

Wiley & Russell Mfg. Co., Greenfield, Mass.

## Books.

Marine Review, Cleveland, Ohio.

Williams, David, 96-102 Reade, N. Y.

Wolcott & West, Syracuse, N. Y.

## Boring Machines.

Buckeye Mfg. Co., Union City, Ind.

## Box Bander.

Goodell, J. W., Burlington, Vt.

## Boxes, Hdw. Shelf, &c.

Green, A. H., 22 Park Place, N. Y.

Jones, Jesse & Co., Philadelphia, Pa.

## Box Straps and Corners.

Buffalo Specialty Mfg. Co., Buffalo, N. Y.

## Brake Shoes.

Sargent Co., Chicago, Ill.

## Brass, Manufacturers of.

Ansonia Brass & Copper Co., N. Y.

Darol, John & Sons, 100 John, N. Y.

Holmes, Booth & Haydens, N. Y.

Plume & Atwood Mfg. Co., N. Y.

Randolph & Clowes, Waterbury, Conn.

Scovill Mfg. Co., Waterbury, Conn.

Waterbury Brass Co., 298 B'way, N. Y.

## Brass Butt Hinges.

Tiebout, W. & J., 16 & 18 Chambers.

## Brass Founders.

Best, Fox & Co., Pittsburgh, Pa.

Bridgeport Deoxidized Bronze & Metal Co., Bridgeport, Conn.

Oramp, Wm. & Sons, 3 & E. B. Co., Philadelphia, Pa.

Emory, P. P. Mfg. Co., Springfield, Mass.

Haight & Clark, Albany, N. Y.

Key, W. W. & R. M. Co., Bridgeport, Conn.

North Bros. Mfg. Co., Phila., Pa.

Reeves, Paul S., Philadelphia, Pa.

## Brass Goods.

Brass Goods Mfg. Co., 88 Chambers.

## Bridge Builders.

Berlin Iron Bridge Co., East Berlin, Ct.

Boston Bridge Works, Boston, Mass.

Wrought Iron Bridge Co., Canton, O.

## Bronze (Tobin).

Ansonia Brass & Copper Co., 19-26 Cliff Street, N. Y.

## Brooms and Brushes.

Lay, Jos. & Co., Ridgeville, Ind.

## Builders' Hardware.

A. B. 87 Chambers St., N. Y.

Reading Hdw. Co., Reading, Pa.

Yale & Towne Mfg. Co., Stamford, Ct.

## Butcher and Shoe Knives, Manufacturers of.

Chaffillon, John & Sons, 55-59 Cliff St., N. Y.

Goodell Co., Antrim, N. H.

Wilson, John, Sheffield, England.

## Butts and Hinges.

McKinney Mfg. Co., Alleghany, Pa.

Sabin Machine Co., Montpelier, Vt.

Stanley Works, New Britain, Conn.

Tiebout, W. & J., 16 Chambers, N. Y.

## Calipers and Dividers.

J. Stevens Arms and Tool Co., Chicopee Falls, Mass.

Starrett, L. S., Athol, Mass.

Cabinet Makers' Benches.

Grand Rapids Hand Screw Co., Grand Rapids, Mich.

## Car Axles.

Roberts, A. & P. & Co., Phila.

## Carboy Stands.

Hillebrand & Wolf, Philadelphia, Pa.

## Car Wheels.

Whitney, A. & Sons, Phila.

## Carriage Hardware, Makers of.

Cover's Saddlery Works, Farmer, N. Y.

Eccles, Richard, Auburn, N. Y.

McKinnon Dash & Hdw. Co., Ltd., Buffalo, N. Y.

Scranton Forging Co., Scranton, Pa.

Smith, H. D. & Co., Plantville, Conn.

Wilcox & Howe Co., Birmingham, Conn.

## Cartridge Reloading Tools.

Ideal Mfg. Co., New Haven, Conn.

## Casters, Wheel, &c.

Clark, G. P., Windsor Locks, Conn.

## Castings, Iron and Steel.

Ames Sword Co., Chicopee, Mass.

Arcade Malleable Iron Co., Worcester, Mass.

Aschman Steel Casting Co., Thurlow, Pa.

Booth, The Lloyd, Co., Youngstown, O.

Burgess & Loxley, Buffalo, N. Y.

The Burr & Houston Co., Brooklyn, N. Y.

Cambria Steel-Cambria Iron Co., Johnstown, Pa.

Cheney, S. & Son, Manlius, N. Y.

Chester Steel Casting Co., Phila.

Chrome Steel Works, Brooklyn, N. Y.

Dayton Malleable Iron Co., Dayton, O.

Erie & Henger Mfg. Co., St. Louis, Mo.

Eureka Cast Steel Co., Chester, Pa.

Flagg, Stanley G. & Co., Phila.

Garland Foundry Co., Cleveland, O.

Haight & Clark, Albany, N. Y.

Hammer & Co., Branford, Conn.

Herrick, J. A., 284 Pearl St., N. Y.

Johnson Foundry Co., Johnstown, Pa.

Johnson, L. G. & Co., Spuyten Duyvil, N. Y.

Maehoning Fdry. & Mch. Co., Danville, Pa.

Northwest Malleable Iron Co., Milwaukee, Wis.

Palmers & De Mooy, Cleveland, O.

Passaic Art Casting Co., Passaic, N. J.

Penn. Diamond Drill & Mfg. Co., Birdsboro, Pa.

Peerless Fdry Co., Philadelphia, Pa.

Sargent Co., Chicago, Ill.

Sessions Foundry Co., Bristol, Conn.

Shilling Fdy. Co., Columbus, O.

Spencer's, L. S., Sons, Guilford, Conn.

Standard Fdy. & Mfg. Co., Cleveland, O.

Standard Steel Casting Co., Thurlow, Pa.

Taylor Iron & Steel Co., High Bridge, N. J.

Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.

Trenton Mal. Iron Co., Trenton, N. J.

Union Mfg. Co., 103 Chambers St., N. Y.

- Drop Presses.**  
Bliss, E. W. Co., Brooklyn, N. Y.  
Crosby, G. A. & Co., Chicago, Ill.  
Ferraute Mch. Co., Bridgeport, N. J.  
Miner & Peck Mfg. Co., New Haven, Conn.  
Stiles & Parker Press Co., Brooklyn, N. Y.  
Vulcan Iron Works, Chicago, Ill.  
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
- Dumb Waiters.**  
Storm Mfg. Co., Newark, N. J.
- Dust Beaters.**  
Peabody & Parks, Troy, N. Y.
- Dynamite.**  
New York Powder Co., 62 Liberty St., N. Y.
- Dynos.**  
O. & C. Electric Motor Co., 402 and 404 Greenwich St., N. Y.  
Detroit Dynamo Co., Detroit, Mich.  
Lovell Mfg. Co., Ltd., Erie, Pa.  
Zucker & Levant Chemical Co., 10 & 14 Grand St., N. Y.
- Edge Tools. Makers of.**  
Suck Bros., Millbury, Mass.  
Butcher, W. & S., 135 Duane St., N. Y.  
Buffalo Edge Tool Wks., Buffalo, N. Y.  
Plumb, Fayette R., Philadelphia, Pa.  
Warren & A. J. Tool Wks., Warren, Pa.  
White, L. & I. Co., Buffalo, N. Y.
- Egg Beaters.**  
North Bros. Mfg. Co., Philadelphia, Pa.
- Electric Bells and Supplies.**  
Ostrander, W. R. & Co., 204 Fulton St., New York  
Wollensak, J. F., Chicago, Ill.
- Electric Dynamo Machines.**  
Eddy Electric Mfg. Co., Windsor, Conn.  
Hanson & Van Winkle Co., Newark, N. J.
- Electric Welding.**  
Thomson Electric Welding Co., Boston, Mass.
- Electro-Platers.**  
Boardman, L. & Son, East Haddam Ct.
- Elevator Buckets.**  
W. J. Clark & Co., Salem, Ohio.
- Elevators. Makers of.**  
Link-Belt Engineering Co., Phila., Pa.  
Moline Elevator Co., Moline, Ill.  
Morse, Williams & Co., Phila., Pa.  
Salem Fdry & Mch. Co., Salem, Mass.
- Emery and Emery Wheels.**  
Bell, Geo. E., 38 John St., N. Y.  
Grant Corundum Wheel Mfg. Co., Worcester, Mass.  
N. Y. Belting & Packing Co., Ltd., N. Y.  
Northampton Emery Wheel Co., Leeds, Mass.  
Norton Emery Wheel Co., Worcester, Mass.  
Springfield Emery Wheel Mfg. Co., Bridgeport, Conn.
- Enamels.**  
Nubian Iron Enamel Co., Cragin, Ill.
- Engineers and Contractors.**  
Alken Henry, Pittsburgh, Pa.  
Artificial Gas Engineering Co., Pittsburgh, Pa.  
Carten, Henry J., Pittsburgh, Pa.  
Herrick, J. A., 284 Pearl St., N. Y.  
Kennedy, Julian, Pittsburgh, Pa.  
Laughlin, Alex. & Co., Pittsburgh, Pa.  
Lean, D. R., Co., Pittsburgh, Pa.  
McClure, Arthur & Co., Pittsburgh, Pa.  
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.  
Roberts, Frank C., Philadelphia, Pa.  
Smythe, S. R. Co., Incorporated, Pittsburgh, Pa.  
Swindell, W. & Bros., Pittsburgh, Pa.  
Wilkie, Bothwell & Co., Ltd., Pittsburgh, Pa.  
Witherow, Jas. P. Co., Pittsburgh, Pa.
- Engines, Gas.**  
Otto Gas Engine Works, Phila., Pa.  
Rollason Gas Engine, Havemayer Bldg., N. Y.
- Engines, Steam. Makers of.**  
Bass Foundry & Machine Works, Ft. Wayne, Ind.  
Buckeye Engine Co., Salem, O.  
Erie Engine Works, Erie, Pa.  
Harrisburg Fdy. & Machine Works, Harrisburg, Pa.  
Lane & Bodley Co., Cincinnati, O.  
Norwalk Iron Works Co., So. Norwalk, Conn.  
Phila. Engineering Works, Phila., Pa.  
Phoenix Iron Wks. Co., Meadville, Pa.  
Shipman Engine Co., Boston, Mass.  
Southwick Foundry and Machine Co., Phila., Pa.  
Tod, William & Co., Youngstown, O.  
Weatherill, Robt. & Co., Chester, Pa.
- Exhaust Tumblers.**  
Sweater, W. A., Brockton, Mass.
- Expansion Belts.**  
Boone, W. C. Mfg. Co., Boonton, N. J.  
Church, Isaac, Toledo, O.
- Faucets, Self-Measuring.**  
Lane Bros., Poughkeepsie, N. Y.
- Faucets, Wooden. Makers of.**  
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.  
John Sommer's Son, Newark, N. J.
- Feed-Water Heaters.**  
Davis, I. R. & Son, Hartford, Conn.  
Goubert Mfg. Co., 32 Cortlandt St., N. Y.  
Harrison Safety Boiler Wks., Phila., Pa.  
National Pipe Bending Co., New Haven, Conn.  
Webster, Warren & Co., Phila., Pa.  
Whitlock Coil Pipe Co., Elmwood, Conn.
- Fencing, Iron and Wire.**  
Barnum, E. T., Detroit, Mich.  
Champion Wire Co., Kenton, O.  
Clinton Wire Cloth Co., Clinton, Mass.  
DeKalb Fence Co., DeKalb, Ill.  
Gilbert & Bennett Mfg. Co., 42 Cliff St., Hartman Mfg. Co., Beaver Falls, Pa.  
Kilmer Mfg. Co., Newburgh, N. Y.
- Fast, Foss & Co., Springfield, O.**  
The Van Dorn Iron Works Co., Cleveland, O.  
Reliance Wire & Iron Wks., Milwaukee, Wis.
- Files, Importers of.**  
Moss, F. W., 80 John, N. Y.
- Files and Rasps, Manufacturers of.**  
Banker & White, Troy, N. Y.  
Barnett, G. & H., 41 & 43 Richmond, Phila.  
Butcher, W. & S., 135 Duane St., N. Y.  
McCaffrey File Co., Troy, N. Y.  
Nicholson File Co., Providence, R. I.
- Fire Brick, Makers of.**  
Borner, Cyrus, Philadelphia, Pa.  
Gardner, Jas. & Son, Cumberland, Md.  
Kretschmer & Sons, Foot E. Houston, St. McLeod & Henry Co., Troy, N. Y.  
Maurer, H. & Son, 420 E. 23d, N. Y.  
Ostrander Fire Brick Co., Troy, N. Y.  
Valentine, M. D. & Bro., Woodbridge, N. J.
- Fire Sets.**  
Troy Nickel Works, Troy, N. Y.
- Flashing Tackle.**  
Dane, Stoddard & Kendall, Boston, Mass.
- Flint and Emery Paper.**  
Baeder, Adamson & Co., Phila., Pa.
- Flour Sifters.**  
Meyers, F. J. Mfg. Co., Covington, Ky.
- Fly Fans.**  
Matthal, Ingram & Co., Baltimore, Md.
- Fly Traps.**  
Cincinnati Mfg. Co., Cincinnati, O.
- Fodder Cutters.**  
Silver Mfg. Co., Salem, O.
- Forges, Portable, &c.**  
Bradley & Co., Syracuse, N. Y.  
Bullock Bellows Co., Cleveland, O.  
Buffalo Forge Co., Buffalo, N. Y.  
Champion Blower & Forge Co., Lancaster, Pa.  
Empire Portable Forge Co., Lansing, N. Y.  
Foss Mfg. Co., Springfield, Ohio.  
Sturtevant, B. & Co., Boston, Mass.
- Forgings, Iron and Steel.**  
Bethlehem Iron Co., S. Bethlehem, Pa.  
Cambria Steel-Cambria Iron Co., Johnstown, Pa.  
Scranton Forging Co., Scranton, Pa.
- Foundry Facings.**  
Chicago Fdy. Supply Co., Chicago, Ill.  
MacKellar Foundry Facing & Supply Co., Quincy, Ill.  
Paxson, J. W. & Co., Phila.  
S. Obermayer Co., Cincinnati, O.  
Smith, J. D. Fdy. Supply Co., Cin., O.
- Foundry Riddles.**  
Gately, W. S., 65 Fulton, N. Y.
- Foundry Supplies.**  
Chicago Fdy. Supply Co., Chicago, Ill.  
Colliau, Victor, Detroit, Mich.  
MacKellar Fdy. Facing & Supply Co., Quincy, Ill.  
S. Obermayer Co., Cincinnati, O.  
Paxson, J. W. & Co., Phila.  
Smith, J. D. Fdy. Supply Co., Cin., O.
- Friction Clutches.**  
Keystone Clutch & Mch. Wks., Phila., Pa.  
Moore & White Co., Philadelphia, Pa.
- Fruit Presses.**  
Enterprise Mfg. Co., Philadelphia, Pa.
- Furnaces, Gasoline.**  
Burges Soldering Fce. Co., Columbus, Ohio.
- Garden Tools.**  
Noyes, B. B. & Co., Greenfield, Mass.
- Gas Producers.**  
Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**  
Pancoast, Henry B. & Co., Phila., Pa.
- Gauge, Rolling Mill.**  
Haines Gauge Co., Philadelphia, Pa.
- Gear Cutters.**  
D. E. Whiton Mach. Co., New London, Conn.
- Gears.**  
Boston Gear Works, Boston, Mass.  
New Process Raw Hide Co., Syracuse, N. Y.  
Poole, Robt. & Son Co., Baltimore, Md.  
Union Fdy. & Mch. Co., Pittsburgh, Pa.
- Glass Boards.**  
Canton Saw Co., Canton, O.
- Glass Tubes.**  
Ashcroft Mfg. Co., 111 Liberty St., N. Y.
- Glass Cutters.**  
Monce, S. G., Bristol, Conn.
- Gline.**  
Baeder, Adamson & Co., Phila., Pa.  
Russell Cement Co., Gloucester, Mass.
- Grass Catchers.**  
Supplee Hardware Co., Phila., Pa.  
Thompson Mfg. Co., Elkhart, Ind.
- Grinding and Polishing Machines.**  
Herrick & Cowell, New Haven, Conn.  
Norton Emery Wheel Co., Worcester, Mass.  
Washburn Shops, Worcester, Mass.
- Grinding Mills.**  
Foss Mfg. Co., Springfield, O.
- Grindstone Dressing Machinery.**  
Blake & Johnson, Waterbury, Conn.
- Grindstones.**  
Cleveland Stone Co., Cleveland, O.  
Huron Grindstone Co., Port Austin, Mich.
- Gun Implements.**  
Union Hdw. Co., Torrington, Conn.
- Gunpowder, Makers of.**  
Laffin & Rand Powder Co., 29 Murray St., N. Y.
- Hand Carts.**  
Lansing Wheelbarrow Co., Lansing, Mich.
- Hand Screws.**  
Grand Rapids Hand Screw Co., Grand Rapids, Mich.
- Halter Chains.**  
Kelley & Woolworth, Niagara Falls, N. Y.
- Handles.**  
New Process Raw Hide Co., Syracuse, N. Y.  
New York Mallet and Handle Wks., 456 E. Houston St., N. Y.
- Hangers, Door.**  
Chicago Spring Butt Co., Chicago, Ill.  
Cronk Hanger Co., Elmira, N. Y.  
Lane Bros., Poughkeepsie, N. Y.  
Victor Mfg. Co., Newburyport, Mass.
- Hardware Comm'n Merchants.**  
Dochter, Martin, 88 Chambers, N. Y.  
Field, Alfred & Co., 93 Chambers St., N. Y.  
Graham, John H. & Co., 111 Chambers St., New York.  
Jacobus, W. H., 90 Chambers, N. Y.
- Hardware Manufacturers.**  
Hotchkiss, E. S., Bridgeport, Conn.  
Stearns, E. C. & Co., Syracuse, N. Y.  
Union Mfg. Co., 103 Chambers, N. Y.  
Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**  
Bingham, W. Co., Cleveland, O.  
Graham, John H. & Co., 113 Chambers, N. Y.  
Hussey, E. J. & Co., 80 John St., N. Y.  
McCoy, Jos. F. Co., 28 Warren St., N. Y.  
Stickley, Sweet & Lyon, 35 Barclay, N. Y.  
Underhill, Clinch & Co., 94 Chambers St., N. Y.
- Hardware Specialties.**  
Aome Shear Co., Bridgeport, Conn.  
Belden Machine Co., New Haven, Conn.  
Clark Mfg. Co., Buffalo, N. Y.  
Empire Portable Forge Co., Lansing, N. Y.  
Enterprise Mfg. Co., Philadelphia, Pa.  
Ette & Henger Mfg. Co., St. Louis, Mo.  
Gardner Mfg. Co., Hamilton, Pa.  
Haines & Zimmerman, Phila., Pa.  
Hart, H. C. Mfg. Co., Detroit, Mich.  
Henn, A. S. & Co., New Haven, Conn.  
Johnson, S. C., Racine, Wis.  
Knapp & Cowles Mfg. Co., Bridgeport, Conn.  
North Bros. Mfg. Co., Philadelphia, Pa.  
Peabody & Parks, Troy, N. Y.  
Welland, Chas., 143 Chambers St., N. Y.  
Wilson, J. Fred, Worcester, Mass.  
Wire Goods Co., Worcester, Mass.  
Underhill, Clinch & Co., 94 Chambers Street, N. Y.
- Hardware, Yacht and Ship.**  
Ferdinand, L. W. & Co., Boston, Mass.
- Harness Snaps.**  
Cover, M. Co., West Troy, N. Y.  
Covers' Saddlery Wks., Farmer, N. Y.  
Fitch, W. & E. T., New Haven, Conn.
- Hav Knives.**  
Holt, Hiram, Co., E. Wilton, Me.
- Holisting Machines.**  
Box, Alfred & Co., 314 Green, Phila.  
Jrow' Holisting & Conveying Mch. Co., Cleveland, Ohio.  
Fulton Iron & Engine Wks., Detroit, Mich.  
Harrington, E. Son & Co., Phila.  
Lane Bros., Poughkeepsie, N. Y.  
Lidgerwood Mfg. Co., 93 Liberty, N. Y.  
Maris & Beekley, Philadelphia.  
Moore Mfg. & Fdy. Co., Milwaukee, Wis.  
Morse, Williams & Co., Phila.  
Scales, Wm. & Co., Phila. and N. Y.  
Speidel, J. C., Reading, Pa.  
Yale & Towne Mfg. Co., Stamford, Ct.
- Hollow-Ware.**  
Bronson Supply Co., Cleveland, Ohio.  
Cleveland Stamping & Tool Co., Cleveland, O.  
Stuart & Peterson Co., Phila., Pa.
- Hollowware, Aluminum.**  
Illinois Pure Aluminum Co., Lemont, Ill.
- Horse and Barbers' Clippers.**  
Hotchkiss, E. S., Bridgeport, Conn.
- Horse Nails, Makers of.**  
National Nail Co., Versenues, vt.  
Standard Horse Nail Co., New Brighton, Pa.
- Horse Shoes, Makers of.**  
Bryden Horse Shoe Co., Catsanqua, N. Y.  
Burden Iron Co., Troy, N. Y.  
Crescent Horse Shoe & Iron Co., Max Meadows, Va.  
Diamond State Iron Co., Wilmington, Del.  
Old Dominion Iron & Nail Works Co., Richmond, Va.  
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.  
Rhode Island Perkins Horse Shoe Co., Providence.  
Standard Horse Shoe Co., Boston, Mass.
- Hose.**  
Cleveland Rubber Co., Cleveland, O.  
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.
- Hose Menders.**  
Hudson, C. E. & Co., Leominster, Mass.
- Hotels.**  
The Audubon, Chicago, Ill.
- Hydrants, &c.**  
McLean, John, 298 & 298 Monroe, N. Y.
- Hydraulic Jacks.**  
Dudgeon, Richard, 24 Columbia, N. Y.  
Watson & Sullivan, 204 E. 33d, N. Y.
- Ice-Cream Freezers.**  
North Bros. Mfg. Co., Phila., Pa.  
Packer, C. W., Philadelphia, Pa.  
White Mountain Freezer Co., Nashua, N. H.
- Ice Shavers.**  
Enterprise Mfg. Co., Philadelphia, Pa.
- Injectors.**  
Jenkins Bros., New York  
Sherwood Mfg. Co., Buffalo, N. Y.
- Insurance, Boiler.**  
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Iron and Steel, Swedish.**  
Lundberg, Gustaf, Boston, Mass.  
Milne, A. & Co., 1 Broadway, N. Y.
- Iron Commission Brokers.**  
Corning, Edw. & Co., 39 B'way, N. Y.  
Cotton, Bradley & Co., Philadelphia.  
Etting, Edw. J., Philadelphia.  
Hogan, John L. & Co., Philadelphia, Pa.  
Hoffman, J. W. & Co., Philadelphia.  
Levy, Henry & Co., Philadelphia.  
Keeley, Jerome & Co., Philadelphia.  
Lee, J. Tammall & Co., Philadelphia.  
Mohr, J. J., 480 Walnut, Philadelphia.  
Mann, E. R. & Co., Philadelphia.  
Pilling & Crane, Philadelphia, Pa.  
Sibell, Geo. H. & Co., Chicago, Ill.  
Wilhelm & Co., Harrisburg, Pa.  
Wister, L. & R. Co., Phila., Pa.
- Iron Ore.**  
Naylor & Co., 45 Wall, N. Y.  
Pickands, Brown & Co., Chicago, Ill.  
Fullman, J. Wesley, Phila., Pa.  
Samuel, Frank, Philadelphia, Pa.
- Iron Merchants.**  
Barnes, O. K. & Co., Philadelphia, Pa.  
Borden & Lovell, 70 West, N. Y.  
Sussensius & Cunliffe, Philadelphia.  
Corning, Edw. & Co., 29 B'way, N. Y.  
Cox, Justus Jr., Philadelphia.  
Cotton, Bradley & Co., Philadelphia.  
Hoffman, J. W. & Co., Philadelphia.  
Leonard, J., 446 West St., N. Y.  
Navlor & Co., 45 Wall St., N. Y.  
Nicolls, Wheeler & Co., Philadelphia.  
Ogden & Wallace, 85 Elm St., N. Y.  
Pickards, Brown & Co., Chicago, Ill.  
Pierson & Co., 29 Broadway, N. Y.  
Richards, D. W. & Co., 88 Mangin St., N. Y.  
Thomson, W. H. & Co., Phila., Pa.  
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.  
Whitney, A. R. & Co., 17 B'way, N. Y.  
Wilson, E. H. & Co., Philadelphia.
- Iron, Importers.**  
Abbott, Jere & Co., N. Y. and Boston.  
Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet, Manufacturers of.**  
Cambridge Iron & Steel Co., Cambridge, Ohio  
W. Dewees Wood Co., Lim., McKeesport, Pa.
- Ironwork, Ornamental.**  
Barnum, E. T., Detroit, Mich.  
Champion Iron Co., Kenton, O.  
Ludlow-Saylor Wire Co., St. Louis, Mo.  
Mast, Foss & Co., Springfield, O.  
The Van Dorn Iron Works Co., Cleveland, O.
- Keys.**  
Wollensak, J. F., Chicago, Ill.
- Kraut Cutters.**  
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
- Ladders.**  
Davies, Chas. & Co., Williamsport, Pa.
- Ladies.**  
Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamp Stoves.**  
Glazier Stove Co., Chelsea, Mich.
- Lamps.**  
Standard Lighting Co., Cleveland, O.
- Lanterns.**  
Dietz, R. E. Co., 60 Light St., N. Y.  
Ohio Lantern Co., Tiffin, Ohio.  
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**  
Draper Machine Tool Co., Worcester, Mass.  
Johnson, Israel H., Jr., & Co., Philadelphia, Pa.  
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing Wire.**  
Clinton Wire Cloth Co., Clinton, Mass.  
N. J. Wire Cloth Co., Trenton, N. J.  
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Laundry Machines.**  
Johnson, S. C., Racine, Wis.
- Lawn Mowers.**  
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.  
Champion Mfg. Co., Richmond, Ind.  
Colwell Lawn Mower Co., Newburgh, N. Y.  
F. & N. Mfg. Co., Richmond, Ind.  
Henley, M. C., Richmond, Ind.  
Lape, W. E., Syracuse, N. Y.  
Mast, Foss & Co., Springfield, O.  
Stearns, E. C. & Co., Syracuse, N. Y.  
Supplee Hdw. Co., Phila., Pa.
- Lawn Rakes.**  
Schaeffer & Co., Dayton, Ohio.  
Syracuse Specialty Mfg. Co., Syracuse, N. Y.
- Lawn Sprinklers.**  
Ette & Henger Mfg. Co., St. Louis.  
McGowan, John H. Co., Cincinnati, O.
- Lawn Sweepers.**  
Lape, W. E., Syracuse, N. Y.
- Lawn Swings.**  
Davies, Chas. & Co., Williamsport, Pa.
- Lemon Squeezers.**  
Ripley Mfg. Co., Unionville, Conn.
- Letters, Paper.**  
Tablet & Ticket Co., Chicago, Ill.
- Levels.**  
Davis & Cook, Watertown, N. Y.  
Richardson, C. F. & Son, Athol, Mass.
- Locks & Knobs, Manufacturers of.**  
Deitz, A. E., 97 Chambers, N. Y.  
Keyless Lock Co., Chicago, Ill.  
Reading Hdw. Co., Reading, Pa.  
Smith & Egge Mfg. Co., Bridgeport, Conn.  
Yale & Towne Mfg. Co., Stamford, Conn.
- Lubricators.**  
Wadham's Oil & Grease Co., Milwaukee, Wis.

See Alphabetical Index, Pages 115 &amp; 116.

- Machinery.**  
Am. Tool Works, Cleveland, Ohio.  
Barnes, W. F. & John, Rockford, Ill.  
Becker, Jno. Mfg. Co., Pittsburg, Pa.  
Bement, Miles & Co., Philadelphia, Pa.  
Bigelow, C. E., 46 Dey, N. Y.  
Bignall & Keeler Mfg. Co., St. Louis.  
Birmingham Iron Foundry, Birmingham, Conn.  
Bliss, E. W. Co., Brooklyn, N. Y.  
Bogert, Jno. L., Flushing, N. Y.  
Briggs, Marvin, 12 Broadway, N. Y.  
Carlin's Sons, Thos., Allegheny, Pa.  
Cinn. Milling Mch. Co., Cincinnati, Ohio.  
Clapp, Geo. M., agt., 74 Cortlandt, N. Y.  
Coulter & McKenzie Mch. Co., Bridgeport, Conn.  
Cruikshank, D. B., Providence, R. I.  
Detrick & Harvey Mch. Co., Baltimore, Md.  
Ehrhardt, Gustave & Sons, Pittsburg, Pa.  
Fitchburg Mch. Works, Fitchburg, Mass.  
Garrison Mch. Co., Laight & Canal St., New York, N. Y.  
Hamilton Mch. Tool Co., Hamilton, O.  
Harrington, E. & Son, Co., Phila., Pa.  
Hendey Machine Co., Torrington, Conn.  
Hendley Mch. Tool Works, Rockford, Ill.  
Hill, Clarke & Co., Boston, Mass.  
Ingersoll Milling Machine Co., Rockford, Ill.  
Johnson, Israel H., Jr., & Co., Phila.  
Jones & Lamson Mch. Co., Springfield, Vt.  
Kelly, Daniel, Phila., Pa.  
Lodge & Davis Mch. Tool Co., Cincinnati, O.  
Lodge & Shipley Mch. Tool Works, Cincinnati, O.  
Lovegrove & Co., Philadelphia, Pa.  
McCabe, J. J., 83 Cortlandt, N. Y.  
Machinists Supply Co., Rochester, N. Y.  
Manville, E. J. Mch. Co., Waterbury, Conn.  
Morton Mfg. Co., Muskegon Heights, Mich.  
National Machinery Co., Tiffin, Ohio.  
Newark Mch. Tool Works, Newark, N. J.  
New Haven Mfg. Co., New Haven, Conn.  
New York Mch. Co., New York, N. Y.  
Niles Tool Wks., 188 Liberty St., N. Y.  
Pedrick & Ayer, Philadelphia, Pa.  
Pittsburgh Mfg. Co., Pittsburgh, Pa.  
Place, Geo., 120 Broadway, N. Y.  
Poole, Robt. & Son, Co., Baltimore, Md.  
Powell Planer Co., Worcester, Mass.  
Pratt & Whitney Co., Hartford, Conn.  
Prentiss Tool & Supply Co., N. Y.  
Scranton Supply & Mchry. Co., Scranton, Pa.  
Sellers, Wm. & Co., Phila.  
Seyfert's Sons L. & Co., Philadelphia, Pa.  
Stephens, J. & Co., Cincinnati, O.  
Stow Flexible Shaft Co., Phila.  
Toomer, Frank, Philadelphia, Pa.  
Wetherill, Robert & Co., Chester, Pa.  
Wilson, W. A., Rochester, N. Y.  
Woodruff Mfg. Co., Hartford, Conn.
- Machinery for Hardware Manufacture.**  
Add, Jno. & Son, New Haven, Conn.
- Machine Knives.**  
Loring Case & Co., Worcester, Mass.  
Loyd, John, 558-562 Water St., N. Y.
- Machine Tools.**—See Machinery.
- Machine Work.**  
Papping, J., 58th St., & 11th Ave., N. Y. City.
- Machinists' Scales.**  
Coffin & Leighton, Syracuse, N. Y.  
Starrett, L. S., Athol, Mass.
- Machinists' Tools and Supplies.**  
King, J. M. & Co., Waterford, N. Y.  
Sellers, Wm. & Co., Inc., Phila.
- Mallets.**  
N. Y. Mallet & Handle Works, N. Y.
- Mangles.**  
Johnson, S. C., Racine, Wis.
- Manufacturing Sites.**  
Kokomo Enterprise Co., Kokomo, Ind.
- Measuring Tapes.**  
Lufkin Rule Co., Saginaw, Mich.
- Meat Cutters.**  
Enterprise Mfg. Co., Philadelphia, Pa.
- Metals.**  
Fearing, Wm. S., 100 Chambers, N. Y.  
Hendricks Bros., 49 Cliff, N. Y.  
Naylor & Co., 45 Wall, N. Y.
- Metal Brokers.**  
American Metal Co., N. Y.
- Metalurgists.**  
Britton, J. B., Blodgett, Phila.
- Metal Saws.**  
Ehrhardt, Gustave & Sons, Pittsburg, Pa.  
Q & C Co., Chicago, Ill.
- Milling Machines.**  
Cin. Milling Mch. Co., Cincinnati, Ohio.  
Ingersoll Milling Machine Co., Rockford, Ill.  
Pedrick & Aver, Phila. Pa.
- Mining Knives.**  
Palmer Bdw. Mfg. Co., Troy, N. Y.
- Mine Lamps.**  
Darby, Edw. & Sons, Phila. Pa.  
Leonard, B. E., Scranton, Pa.  
Leonard, T. F., Scranton, Pa.
- Mining Screens.**  
Harrington & King Perforating Co., Chicago, Ill.  
Howard & Morse, 45 Fulton, N. Y.
- Minnow Traps.**  
Wilson, Ed. C., Olney, Ill.
- Mirrors.**  
Rice, C. F., Chicago, Ill.
- Molding Sand.**  
Chicago Foundry Supply Co., Chicago, Ill.  
Obermayer, S. Co., Cincinnati, O.  
Paxon, J. W. & Co., Phila.
- Motors, Water and Electric.**  
C. & V. Electric Motor Co., 402 and 404 Greenwich St., N. Y.  
Dalleit, Thos. & Co., Phila., Pa.  
Thomson, Houston Motor Co., Boston, Mass.
- Nail Machinery.**  
Pittsburgh Mfg. Co., Pittsburgh, Pa.
- Nails (Cut) and Spikes.**  
Borden & Lovell, 70 West, N. Y.  
Cumberland Nail & Iron Co., Phila.  
Oxford Iron Co., 81 Washington, N. Y.  
Pottstown Iron Co., Pottstown, Pa.  
Riverside Iron Wks., Wheeling, W. Va.
- Nickel Platers' Supplies.**  
Eddy Electric Mfg. Co., Windsor, Conn.  
Hanson & Van Winkle Co., Newark, N. J.  
Zucker & Lovett Chemical Company, 10 to 14 Grand St., N. Y.
- Norway Shapes, Rollers of.**  
Rowland, William & Harvey, Ford, Philadelphia
- Nut Machines.**  
Dunham Nut Mch. Co., Unionville, O.
- Nuts, Bolts, &c., Makers of.**  
American Bolt Co., Lowell, Mass.  
American Screw Co., Providence, R. I.  
Blake & Johnson, Waterbury, Conn.  
Haskell, Wm. H. Co., Pawtucket, R. I.  
McCormick Bolt & Nut Co., Chester, N. Y.  
Russell, Burdall & Ward, Port Chester, N. Y.  
Stearns, J. H. & Son, Reading, Pa.  
Wilson, J. Fred., Worcester, Mass.  
Wm. H. Haskell Co., Pawtucket, R. I.
- Oil Cans and Lubricators.**  
Sherwood Mfg. Co., Buffalo, N. Y.
- Oil Stones.**  
Pike Mfg. Co., Pike Station, N. H.
- Oil Stoves.**  
Glazier Stove Co., Chelsea, Mich.
- Ores.**  
Wister, Francis, Philadelphia, Pa.
- Shoes.**  
Scranton Forging Co., Scranton, Pa.
- Packing.**  
Billington, Jas. H. & Co., Phila., Pa.  
Morrison, Robt., St. Louis, Mo.  
N. Y. Belting & Packing Co. Ltd., N. Y.
- Paddocks.**  
Ames Sword Co., Chicopee, Mass.  
Fram, E. T., Lancaster, Pa.  
Hillebrand & Wolf, Phila., Pa.  
Miller Lock Co., Philadelphia, Pa.
- Paint.**  
Detroit Grapnite Mfg. Co., Detroit, Mich.  
Dixon, Jos. Crucible Co., Jersey City, N. J.  
Garry Iron & Steel Roofing Co., Cleveland, O.
- Paint Burners.**  
Dangler Stove & Mfg. Co., Cleveland, O.
- Patent Solicitors.**  
Fitzgerald, S. C., Washington, D. C.  
Howson & Howson, Phila. & Washgton.  
Jenner, H. W. T., Washington, D. C.  
Stocking, E. B., Washington, D. C.
- Perforated Metal.**  
Clinton Wire Cloth Co., Clinton, Mass.  
Harrington & King Perforating Co., Chicago, Ill.
- Phosphor Bronze.**  
Phosphor Bronze Casting Co., Limited, 512 Arch, Philadelphia.
- Phosphor Tin.**  
Crescent Phosphorized Metal Co., Philadelphia, Pa.  
Crosby Steam Gauge & Valve Co., Boston, Mass.
- Plak & Naumann, 516 Pearl, N. Y.**
- Plaks and Mattocks.**  
Plumb, Fayette K., Philadelphia, Pa.
- Pig Iron.**  
Houston, C. B. & Co., Philadelphia, Pa.  
Mann, Edwin R., Philadelphia, Pa.  
Montour Iron & Steel Co., Danville, Pa.  
Taylor & Co., 45 Wall, N. Y.  
Pickands, Brown & Co., Chicago, Ill.  
Pilling & Crane, Philadelphia, Pa.  
Samuel, Frank, Philadelphia, Pa.
- Pig Iron Storage.**  
Am. Pig Iron Storage Warehouse, 44 Wall, N. Y.
- Pile Drivers.**  
Vulcan Iron Wks., Chicago, Ill.
- Pipe, Bent.**  
National Pipe Bending Co., New Haven
- Pipe Cutting and Threading Machines.**  
Bignall & Keeler Mfg. Co., St. Louis, Mo.  
Merrill Mfg. Co., Toledo, O.  
Pancoast Henry B. & Co., Philadelphia, Pa.  
Sauder's Sons, D., Yonkers, N. Y.
- Pipe Grips.**  
Prentiss Vise Co., 44 Barclay, N. Y.
- Pipes, Fittings, &c., Makers of.**  
McNab & Harlin Mfg. Co., N. Y.
- Pipe, Water and Gas. Makers of.**  
Cumberland Nail & Iron Co., Phila. Pa.  
Donaldson Iron Co., Emsau, Pa.  
Riverside Iron Works, Wheeling, W. Va.  
Wood, R. D. & Co., Philadelphia, Pa.
- Plane Irons, Manufacturers of.**  
Buck Bros., Millbury, Mass.
- Planes, Manufacturers of.**  
Stanley Rule & Level Co., N. Y.
- Plate Bending Rolls.**  
Johncock, H. A., 530 W. 28th St., N. Y.
- Plate, Iron and Steel, Mfgs.**  
Atlas-Standard Iron & Steel Co., Bridgeport, O.  
Lukens Iron & Steel Co., Coatesville, Pa.  
Mahoning Valley Iron Co., Youngstown, Ohio.  
McLean Co., Pittsburgh, Pa.  
McLain & Sons, Reading, Pa.  
Pottstown Iron Co., Pottstown, Pa.  
Pottsville Iron & Steel Co., Pottsville, Pa.  
Singer, Nimick & Co., Pittsburgh, Pa.  
The Mahoning Valley Iron Co., Youngstown, O.  
Wellman Iron & Steel Co., Thurlow, Pa.  
Woodman Co., Philadelphia.
- Plating, Nickel, Brass and Silver.**  
Wilmet & Hobbs Mfg. Co., Bridgeport, Conn.
- Plumbago.**  
Chicago Fdy. Supply Co., Chicago, Ill.
- Pokers and Lifters.**  
Troy Nickel Works, Troy, N. Y.
- Polishing Machines.**  
Watson & Stillman, 204 E. 43d, N. Y.
- Polishing Wheel.**  
La Massena, C. E. & Co., Newark, N. J.
- Pont Hole Diggers.**  
Buckeye Mfg. Co., Union City, Ind.  
Kohler, F. E. & Co., Canton, Wis.  
Wister, L. E. & Co., Philadelphia, Pa.
- Poultry Nettings.**  
Barnum, E. T., Detroit, Mich.  
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.  
N. Y. Wire Cloth Co., Trenton, N. J.  
"Silver Finish."  
Tyler Wire Wks. Co., W. S., Cleveland, O.  
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Powder.**  
Adin & Rand Powder Co., 29 Murray, New York Powder Co., 62 Liberty St., N. Y.
- Power Hack Saws.**  
Millers Falls Co., 62 Reade St., N. Y.  
Stover Novelty Wks., Freeport, Ill.
- Power Hammers.**  
Bradley & Co., Syracuse, N. Y.  
Gelden Mch. Co., New Haven, Conn.  
Hesselt & Eisenhardt, Philadelphia, Pa.  
DuPont Mfg. Co., St. Johnsbury, Vt.  
Jenkins & Lingie, Bellefonte, Pa.
- Presses, Dies, &c.**  
E. W. Bliss Co., Brooklyn, N. Y.  
Foster, G. A. & Co., Chicago, Ill.  
Fergusson Mch. Co., Bridgeton, N. J.  
Stark Mch. & Tool Co., Buffalo, N. Y.  
Stiles & Parker Press Co., Brooklyn, N. Y.  
Waterbury Mch. Co., Waterbury, Conn.
- Presses, Power, Makers of.**  
Bliss, E. W. Co., Brooklyn, N. Y.  
Manville, E. J. Mch. Co., Waterbury, Conn.  
Merriman, A. H., Meriden, Conn.  
Stark Mch. & Tool Co., Buffalo, N. Y.  
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
- Pulley Fixings.**  
Foley, J. W. & Co., Cincinnati, O.
- Pulleys.**  
Great Western Pin Co., Toledo, O.  
Astoria Clutch, Chm. Wks., Phila., Pa.  
Reeves Pulley Co., Columbus, Ind.
- Pulverizing Mill.**  
Bradley Fertilizer Co., Boston, Mass.
- Pumping Machinery.**  
Coulter & McKenzie Mch. Co., Bridgeport, Conn.  
Dean Bros. Steam Pump Works, Inghams Falls, N. Y.  
Seneca Falls, N. Y.  
Hooperville Steam Pump Co., Chicago, Ill.  
Lucas, C. O. & Co., Greenville, Ohio.  
McCowan, J. H. & Co., Cincinnati, O.  
Maslin, J. & Son, Jersey City, N. J.  
Norwalk Iron Wks. Co., So. Norwalk, Conn.
- Southward Fdy. & Mch. Co., Phila., Pa.**  
Valley Pump Wks., Easthampton, Mass.  
Worthington, Henry R., 86 & 88 Liberty St., N. Y.
- Pumps, Makers of.**  
Bellevue Pump Co., Bellevue, Iowa.  
Jemison Co., Salem, O.  
Douglas, W. B., Middletown, Conn.  
Mast, Foss & Co., Springfield, O.  
Meyer, F. E. & Co., Ashland, O.  
St. Joseph Pump Co., St. Joseph, Mo.
- Punches and Shears, Hand and Power.**  
Bertsch & Co., Cambridge City, Ind.  
E. & S. Stiles Co., Brooklyn, N. Y.  
Cockburn Barrow & Mch. Co., Jersey City, N. J.  
Crosby, G. A. & Co., Chicago, Ill.  
Fergusson Mch. Co., Bridgeton, N. J.  
New Dory Mch. Co., Jacksonville, Wis.  
Robinson, J. M. & Co., Cincinnati, O.  
Schneekeoth, H. A., 530 W. 28th St., N. Y.  
Stark Mch. & Tool Co., Buffalo, N. Y.  
Stiles & Parker Press Co., Brooklyn, N. Y.  
Vais & Roos, Punch & Shear Co., Cincinnati, Ohio.  
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.  
Watson & Stillman, 204 E. 43d, N. Y.
- Rails, Old and New.**  
Hirsh, L. K., Chicago, Ill.  
Perry, W. H. & Co., Providence, R. I.  
Schwarzenberg Bros. & Co., Cleveland, O.
- Rat and Mouse Traps.**  
Burditt & Williams, Boston, Mass.  
Estey, W. S., 56 Fulton, N. Y.  
Holev Mfg. Co., Unionville, Conn.  
Sun Mfg. Co., Greenfield, O.
- Razors.**  
Butcher, W. & S., 135 Duane St., N. Y.  
Curley, J. & Bro., 6 Warren St., N. Y.  
Electric Cutlery Co., 118 Chambers, N. Y.  
Schmitz, E. Lothar, 92 Reade St., N. Y.  
J. R. Torrey razor Co., Worcester, Mass.
- Refrigerator Door Fasteners.**  
Conroy, F. J. & Co., Philadelphia.
- Rivets.**  
Blake & Johnson, Waterbury, Conn.  
Burden Iron Co., N. Y.  
Cobb & Drew, Plymouth, Mass.  
Henderson, Jas. S., 165 Greenwich, N. Y.  
Plymouth Mills, Plymouth, Mass.  
Sternbergh, J. H. & Son, Reading, Pa.  
Townsend, W. P. & Co., New Brighton, Pa.
- Riveting Machines.**  
Add, Jno. & Sons, New Haven, Conn.
- Roasters and Bakers.**  
Matthal, Ingram & Co., Baltimore, Md.
- Rock Drills.**  
Penna. Diamond Drill & Mfg. Co., Birdsboro, Pa.  
Bend Drill Co., 23 Park Place, N. Y.
- Rolling Mill Machinery.**  
Birmingham Iron Fdry, Birmingham, Conn.  
Booth, The Lloyd, Co., Youngstown, O.  
Leachbury Foundry & Mch. Co., Pittsburgh, Pa.  
Mahoning Fdry & Mch. Co., Danville, Pa.  
Morgan Construction Co., Worcester, Mass.  
Robinson-Rea Mfg. Co., Pittsburgh, Pa.  
Totzen & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.  
Trethewey Mfg. Co., Pittsburgh, Pa.  
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.
- Roll Lathes.**  
Totten & Bogg Iron & Steel Fdry Co., Pittsburgh, Pa.
- Rolls, Chilled, Sand and Steel.**  
Booth, The Lloyd, Co., Youngstown, O.  
Garrison, A. Fdry, Co., Pittsburgh, Pa.  
Johnson Foundry Co., Johnstown, Pa.  
Seaman, Sleeth & Black, Pittsburgh, Pa.  
Totzen & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
- Roofing.**  
Berlin Iron Bridge Co., E. Berlin, Conn.  
Boston Bridge Works, Boston, Mass.  
Cambridge Roofing Co., Cambridge, O.  
Cincinnati Corrugating Co., Cincinnati, O.  
Johns, H. W. Mfg. Co., 87 Maiden Lane
- Rope and Web Goods.**  
Covert Mfg. Co., West Troy, N. Y.  
Covert's Saddlery Wks., Farmer, N. Y.
- Rope Wheels.**  
Cresson, Geo. V. Co., Philadelphia, Pa.
- Rubber Goods.**  
Canfield, H. O., Bridgeport, Conn.
- Rules, Manufacturers of.**  
Lufkin Rule Co., Saginaw, Mich.  
Standard Tool Co., Athol, Mass.  
Stanley Rule & Level Co., 29 Chambers, N. Y.
- Sad Irons.**  
Universal Sad Iron Co., Milwaukee, Wis.
- Sand Paper.**  
Baeder, Adamson & Co., Phila., Pa.
- Sash Balances.**  
Caldwell Mfg. Co., Rochester, N. Y.  
Fullman Sash Balance Co., Rochester, N. Y.  
Stewart & Baker, Rochester, N. Y.  
Vanderbilt Sash Balance Co., Canandaigua, N. Y.
- Sash Cords and Chains.**  
Morton, Thos., 65 Elizabeth, N. Y.  
Ossawun Mills Co., Norwich, Conn.  
Samson Cordage Works, Boston, Mass.  
Smith & Egge, Mfg. Co., Bridgeport, Conn.
- Sash Holders.**  
Motley, Peter, Philadelphia, Pa.
- Sash Locks.**  
Ives, H. E. & Co., New Haven, Conn.
- Sash Pulleys.**  
Empire Portable Forge Co., Lansingburgh, N. Y.  
Palmer Hardware Mfg. Co., Troy, N. Y.
- Sash Pulley Marker.**  
Skelly, J. W. & Son, Bristol, Conn.
- Sash Weights.**  
Brown, E. E. & Co., Philadelphia, Pa.
- Sash Weight Fasteners.**  
Skelly, J. W. & Son, Bristol, Conn.
- Saw Handles.**  
Gwinner Mfg. Co., Hamilton, O.
- Saws, Makers of.**  
Athol, E. C. & Co., Indianapolis, Ind.  
Diastion, Henry & Sons, Phila., Pa.  
Hiles, C. A. & Co., 334-335 Carroll Ave, Chicago, Ill.  
National Saw Co., 96 Reade St., N. Y.  
Simonds Mfg. Co., Fitchburg, Mass.
- Saw Sets.**  
Kohler, F. E. & Co., Canton, Ohio.  
Taintor Mfg. Co., 84-86 Chambers, N. Y.
- Scales, Manufacturers of.**  
Buffalo Scale Co., Buffalo, N. Y.  
Chadillon, John & Sons, 85-89 Cliff, N. Y.
- Scrapers, Road.**  
Am. Steel Scraper Co., Sidney, Ohio.  
Kilbourne & Jacobs Mfg. Co., Columbus, O.  
Sidney Steel Scraper Co., Sidney, O.
- Screens, Door and Window.**  
Queen Anne Screen Co., Burlington, Vt.
- Screw Cutting Machinery.**  
Wells Bros. & Co., Greenfield, Mass.  
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Screw Drivers.**  
Brown, R. H. & Co., New Haven, Conn.  
Capitol Mfg. Co., Chicago, Ill.  
Chantrell Tool Co., Reading, Pa.  
Mayhew, H. R. Co., Shelbourne Falls, Mass.
- Screw Plate and Pipe Cutter.**  
Jarecki Mfg. Co., Erie, Pa.
- Screws, Makers of.**  
American Screw Co., Providence, R. I.  
Blake & Johnson, Waterbury, Conn.  
Wm. H. Haskell Co., Pawtucket, R. I.  
Miles, F. S., 205 Quarry, Philadelphia, Pa.  
National Screw & Tack Co., Cleveland, Ohio.  
Reynolds & Co., New Haven, Conn.  
Worcester Machine Screw Co., Worcester, Mass.
- Screw Saws.**  
Barnes, W. F. & John, Rockford, Ill.  
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Seythe Stones and Whetstones.**  
Pike Mfg. Co., Pike Station, N. H.  
Cleveland Stone Co., Cleveland, O.  
Huron Grindstone Co., Port Austin, Mich.
- Shafting, Makers of.**  
Cresson, Geo. V. Co., Philadelphia, Pa.  
Fairmount Mch. Co., Philadelphia, Pa.  
Fittsimons & Co., Cleveland, Ohio.  
Sellers, Wm. & Co., Inc. Phila. Pa.  
Stow Mfg. Co., Binghamton, N. Y.
- Shaped Iron and Steel, Manufacturers of.**  
Atlas-Standard Iron & Steel Co., Bridgeport, O.

**Allentown Rolling Mill.** Allentown, Pa.  
**Illinois Steel Co.,** Chicago, Ill.  
**Lockhart Iron & Steel Co.,** Pittsburg, Pa.  
**Passaic Rolling Mill Co.,** Paterson, N. J.  
**Pottsville Iron & Steel Co.,** Pottsville, Pa.  
**Roberts, A. & P. & Co.,** Phila., Pa.  
**The Phoenix Iron Co.,** Phila., Pa.  
**Tudor Iron Works,** St. Louis, Mo.

**Shears and Scissors.**  
**Aome Shear Co.,** Bridgeport, Conn.  
**Heinrichs, R. Sons Co.,** Newark, N. J.

**Sheet Iron and Steel, Manufacturers of.**  
**Atna Standard Iron and Steel Co.,** Bridgeport, O.  
**Cambridge Iron & Steel Co.,** Cambridge, Ohio.  
**Chess Bros.,** Pittsburg, Pa.  
**Mahoning Valley Iron Co.,** Livingston, Ohio.  
**Moorehead-McCleane Co.,** Pittsburg, Pa.  
**Pierson & Co.,** 29 Broadway, N. Y.  
**Reilly, John W.,** Fort Hunter, P. O., Pa.  
**Singer, Nimick & Co.,** Pittsburg, Pa.  
**The Mahoning Valley Iron Co.,** Youngstown, O.  
**Alan Wood Co.,** Philadelphia, Pa.  
**W. Dewees Wood Co.,** McKeesport, Pa.

**Sheet Metal Work.**  
**Clark & Cowler,** Plainville, Conn.

**Sheet Zinc.**  
**Mathiessen & Hegeler Zinc Co.,** La Salle, Ill.

**Shelf Brackets.**  
**Koch, A. B. & Co.,** Peoria, Ill.

**Shovels, Spades and Scoops.**  
**Myers, H. M. Co.,** Beaver Falls, Pa.

**Sinks.**  
**Douglas, W. & B.,** Middletown, Conn.

**Skates, Ice.**  
**Dame, Stoddard & Kendall,** Boston, Mass.  
**Winslow, Sam'l, Skate Mfg. Co.,** Worcester, Mass.

**Skates, Roller.**  
**Henley, M. C.,** Richmond, Ind.  
**Union Hardware Co.,** Torrington, Conn.  
**Winslow, Sam'l, Skate Mfg. Co.,** Worcester, Mass.

**Skylights.**  
**Pienty Horticultural & Skylight Wks.,** 145 Liberty St., New York.

**Smelting Works.**  
**Reeves, Paul S.,** 760 S. Broad, Phila.

**Speaking Tubes.**  
**Ostrander, W. R. & Co.,** 204 Fulton St., N. Y.  
**Wollensak, J. F.,** Chicago, Ill.

**Specialties, Pat. Articles.**  
**Konigsow, O.,** Cleveland, O.

**Speed Indicators.**  
**Church & Sleight,** 109 Fulton St., N. Y.

**Spelter.**  
**Mathiessen & Hegeler Zinc Co.,** La Salle, Ill.

**Spoons and Forks.**  
**Holmes & Edwards Silver Co.,** Bridgeport, Conn.  
**Rogers, The Wm. Mfg. Co.,** Hartford, Conn.

**Sporting Goods.**  
**Bartley & Graham,** 313-315 B'way, N. Y.

**Spring.**  
**American Spiral Spring Co.,** Pittsburg, Pa.  
**Cary, Alanson,** 240-242 W. 29th St., N. Y.  
**Dunbar Bros.,** Bristol, Conn.  
**Miller & Van Winkle,** Brooklyn, N. Y.  
**Morgan Spring Co.,** Worcester, Mass.  
**Nourse, Fred. Co.,** 315 to 319 E. 22d St., N. Y.  
**Sabin Machine Co.,** Montpelier, Vt.  
**Washburn & Moen Mfg. Co.,** Worcester, Mass.  
**Wolf, R. H. & Co., Ltd.,** 118th St. and Harlem River, N. Y.

**Spring Hinges.**  
**Bardley, J.,** 149 & 151 Baxter St., N. Y.  
**Chicago Spring Butt Co.,** Chicago, Ill.  
**Fullman Sash Balance Co.,** Rochester, N. Y.  
**Stover Mfg. Co.,** Freeport, Ill.  
**Van Wagoner & Williams Co.,** 14 Warren St., N. Y.

**Spring Keys and Cotter.**  
**Whitman & Barnes Mfg. Co.,** Syracuse, N. Y.

**Sprinklers.**  
**Smith, Oliver A.,** Clarkston, Mich.

**Stamped Ware.**  
**Am. Stamping Co.,** 104 & 106 John St., New York.

**Stamping Works.**  
**Avery Stamping Co.,** Cleveland, O.  
**Cleveland Stamping & Tool Co.,** Cleveland, O.

**Staples.**  
**Cobb & Draw,** Plymouth, Mass.  
**Titchener E. H. & Co.,** Binghamton, N. Y.

**Steam Gauges.**  
**Aschcroft Mfg. Co.,** 111 Liberty St., N. Y.  
**Bristols Mfg. Co.,** Waterbury, Conn.

**Steam Hammers, &c., Makers of.**  
**Dienelt & Eisenhardt,** Philadelphia.  
**Dudgeon, Richard,** 24 Columbia Street, N. Y.  
**Trethewey Mfg. Co.,** Pittsburg, Pa.

**Steam Heating.**  
**Webster Warren & Co.,** Phila., Pa.

**Steam Separators.**  
**Goubert Mfg. Co.,** 32 Cortland St. N. Y.  
**Harrison Safety Boiler Wks. Phila.,** Pa.

**Steel Balls.**  
**Grant Anti-Friction Ball Co.,** Fitchburg, Mass.

**Steel, Cold Rolled Strip.**  
**Wilmet & Hobbs Mfg. Co.,** Bridgeport, Conn.

**Steel Figures and Alphabets.**  
**Krogerud, W.,** 61 Fulton, N. Y.

**Steel Importers.**  
**Abbott, Jere & Co.,** N. Y. and Boston.  
**Hobson, Francis, Seaman & Co.,** P. O. John St., N. Y.  
**Jessop, Wm. & Sons,** Sheffield, England, or 91 John, N. Y.  
**Milne, A. & Co.,** 1 Broadway, N. Y.  
**Newton & Shipman,** 83 John, N. Y.  
**Wetherell Bros.,** 98 Liberty St., N. Y.  
**Whitney, A. R. & Co.,** B'way, N. Y.  
**Wolf, R. H. & Co., Ltd.,** 118th Street and Harlem River, N. Y.

**Steel (Mushet's Special).**  
**Jones, B. M. & Co.,** Boston.

**Steel Manufacturers.**  
**Atna-Standard Iron & Steel Co.,** Bridgeport, Conn.  
**Bethlehem Iron Co.,** S. Bethlehem, Pa.  
**Baker, Herman & Co.,** 103 Duane St., Carbon Steel Co., Pittsburg, Pa.  
**Chester Steel Castings Co.,** Phila., Pa.  
**Chrome Steel Works,** Brooklyn, N. Y.  
**Crecent Steel Co.,** Pittsburg, Pa.  
**Elken & Co.,** Hazen, Germany.  
**Frankford Steel Co.,** Philadelphia.  
**Gautier Steel Department of Cambria Iron Co.,** Johnstown, Pa.  
**Hobson, Francis, Seaman & Co.,** P. O. John St., N. Y.  
**Illinois Steel Co.,** Chicago, Ill.  
**Jessop, Wm. & Sons,** Sheffield, England, or 91 John, N. Y.  
**Kayser, Ellison & Co.,** Sheffield, Eng.  
**La Belle Steel Co.,** Pittsburg, Pa.  
**Lukens Iron & Steel Co.,** Coatesville, Pa.  
**Moorehead-McCleane Co.,** Pittsburg, Pa.  
**Moss, F. W.,** 83 John, N. Y.  
**Naylor & Co.,** 45 Wall, N. Y.  
**Pottsville Iron and Steel Co.,** Pottsville, Pa.  
**Reilly, J. W.,** Fort Hunter, P. O., Pa.  
**Rowland, Wm. & Harvey,** Frankford, Philadelphia.  
**Singer, Nimick & Co.,** Pittsburg, Pa.  
**Stanley Works, New Britain, Conn.**  
**Steel & Iron Improvement Co.,** Pittsburgh, Pa.  
**Taylor Iron & Steel Co.,** High Bridge, N. J.  
**Wordlaw, S. & C.,** Sheffield, Eng.  
**Wetherell Bros.,** 98 Liberty, N. Y.  
**Wilmet & Hobbs Mfg. Co.,** Bridgeport, Conn.

**Steel, Manufacturers' Agents.**  
**Barnes, C. K. & Co.,** Philadelphia, Pa.  
**Corning, Edw. & Co.,** 29 B'way, N. Y.  
**Lindsay, Jas. G. & Co.,** Phila., Pa.  
**Pierson & Co.,** 29 Broadway, N. Y.

**Steel Rails, Manufacturers of.**  
**Bethlehem Iron Co.,** S. Bethlehem, Pa.  
**Cambria Iron Co.,** Johnstown, Pa.  
**Illinois Steel Co.,** Chicago, Ill.  
**Montour Iron & Steel Co.,** Danville, Pa.  
**Riverside Iron Wks.,** Wheeling, W. Va.

**Steel Spiral Springs, Manufacturers.**  
**Chatillon, John & Sons,** N. Y.  
**Roland, Wm. & Harvey,** Frankford, Phila.  
**Wolf, R. H. & Co., Ltd.,** 118th Street and Harlem River, N. Y.

**Steel, Tools.**  
**Frankford Steel Co.,** Philadelphia, Pa.  
**Jessop, Wm. & Sons,** Sheffield, England, or 91 John, N. Y.  
**Jones, B. M. & Co.,** Boston, Mass.  
**La Belle Steel Co.,** Pittsburg, Pa.

**Step Ladders.**  
**Bicycle Step Ladder Co.,** Chicago, Ill.  
**Croissant, M.,** Albany, N. Y.

**Stocks and Dies.**  
**Armstrong Mfg. Co.,** Bridgeport, Conn.  
**Billings & Spencer Co.,** Hartford, Conn.  
**Butterfield & Co.,** Derby Line, Vt.  
**Hart Mfg. Co.,** Cleveland, O.  
**Saunders' Sons, D.,** Yonkers, N. Y.  
**Wells Bros. & Co.,** Greenfield, Mass.  
**Wiley & Russell Mfg. Co.,** Greenfield, Mass.

**Stone Linings.**  
**Ostrander Fire Brick Co.,** Troy, N. Y.

**Stone Pipe Thimbles.**  
**Cheney, S. & Son,** Manlius, N. Y.

**Stone Trimmings.**  
**Troy Nickel Works,** Troy, N. Y.

**Street Lamps.**  
**Dietz, R. E. Co.,** 60 Lighthouse St., N. Y.  
**Steam Gauge & Lantern Co.,** Syracuse, N. Y.

**Strops.**  
**Electric Cutlery Co.,** 113 Chambers, N. Y.  
**J. R. Torrey & Co.,** Worcester, Mass.

**Strapping Machines.**  
**Schmitt, E. Lothar,** 92 Reade St., N. Y.

**Structural Iron Work.**  
**Berlin Iron Bridge Co.,** East Berlin, Conn.  
**Boston Bridge Wks.,** Boston, Mass.  
**Lindsay, Jas. G. & Co.,** Phila., Pa.  
**Wrought Iron Bridge Co.,** Canton, O.

**Sulphuric Acid.**  
**Mathiessen & Hegeler Zinc Co.,** La Salle, Ill.

**Tacks, Brads, Staples, &c.**  
**Atlas Tack Corporation,** Boston, Mass.  
**Cobb & Draw,** Plymouth, Mass.  
**Grand Corrosion Tack Co.,** Grand Crossing, Ill.  
**Nat. Screw & Tack Co.,** Cleveland, O.  
**Phillips, E. & Sons,** South Hanover, Plymouth Mills, Plymouth, Mass.  
**Tratant, W. E.,** Whitman, Mass.

**Taps and Dies.**  
**Eutterfield & Co.,** Derby Line, Vt.  
**Carpenter, J. M.,** Tap & Die Co., Pawtucket, R. I.  
**Manning, Maxwell & Moore,** 111 Liberty St., N. Y.  
**Wells Bros. & Co.,** Greenfield, Mass.  
**Wiley & Russell Mfg. Co.,** Greenfield, Mass.

**Testing Laboratories.**  
**Riehle Bros. Testing Mch. Co.,** Philadelphia.

**Testing Machines.**  
**Riehle Bros. Testing Mch. Co.,** Phila.

**Theatrical Hardware.**  
**Wollensak, J. F.,** Chicago, Ill.

**Thill Springs.**  
**Frost Thill Spring Co.,** Boston, Mass.  
**Sabin Machine Co.,** Montpelier, Vt.

**Time Record.**  
**Scattergood, H. W.,** Phila., Pa.

**Timbers' Hardware.**  
**Berger Bros.,** Philadelphia, Pa.

**Tin Plate Machinery.**  
**Lloyd Booth Co.,** Youngtown, Ohio.

**Tinware.**  
**Am. Stamping Co.,** 104 & 106 John St., Mathal, Ingram & Co., Baltimore, Md.

**Tire Upsetters.**  
**Butts & Ordway,** Boston, Mass.  
**Illinois Iron & Bolt Co.,** Carpenterville, Ill.

**Toe Calks, Steel.**  
**Burke, P. F.,** Boston, Mass.

**Tool Chests.**  
**Am. Tool Co.,** 200 W. Houston St., N. Y.

**Tools.**  
**Adkins, E. C. & Co.,** Indianapolis, Ind.  
**Britton, Horace E.,** Stoughton, Mass.  
**Brown, R. H. & Co.,** New Haven, Conn.  
**Chantrell Tool Co.,** Reading, Pa.  
**Cincinnati Tool Co.,** Cincinnati, O.  
**France Co.,** 19 Warren St., New York.  
**Mayhew, H. H. Co.,** Shelburne Falls, Mass.  
**Millers Falls Co.,** 98 Reade, N. Y.  
**Richardson, C. F. & Son,** Athol, Mass.  
**Standard Tool Co.,** Athol, Mass.  
**Stanley Rule & Level Co.,** 29 Chambers, New York.  
**Starrett, L. S.,** Athol, Mass.  
**Tower & Lyon,** 95 Chambers St., N. Y.

**Tools, Blacksmith and Wheelwrights.**  
**Master Wheelers Co.,** Buffalo, N. Y.  
**Butts & Ordway,** Boston, Mass.  
**Champion Blower & Forge Co.,** Lancaster, Pa.  
**Illinois Iron & Bolt Co.,** Carpenterville, Ill.  
**Plumb, Fayette R.,** Philadelphia, Pa.  
**Wright & Russell Mfg. Co.,** Greenfield, Mass.

**Tools, Steam and Gas Fitters'.**  
**Saunders' Sons, D.,** Yonkers, N. Y.

**Torches, Oil and Gasolene.**  
**Master Stove & Mfg. Co.,** Cleveland, O.  
**Schneider & Trenkamp Co.,** Cleveland, Ohio.  
**Standard Lighting Co.,** Cleveland, O.

**Transom Lifters.**  
**Wollensak, J. F.,** Chicago, Ill.

**Tree Protectors.**  
**McCallip Fence & Wire Wks.,** Columbus, Ohio.

**Trucks, Manufacturers of.**  
**Berger Bros.,** Philadelphia, Pa.  
**Boston & Lockport Block Co.,** Boston, Mass.  
**and Lockport, N. Y.**  
**Clark, G. P.,** Windsor Locks, Conn.  
**Lansing Wheelbarrow Co.,** Lansing, Mich.

**Tubes, Seamless Drawn Copper.**  
**Ansonia Brass & Copper Co.,** 19 and 21 Cliff, N. Y.  
**Randolph & Clowes,** Waterbury, Conn.

**Tubes, Steel.**  
**Leng's John S. Son & Co.,** 4 Fletcher St., New York.  
**Shelby Steel Tube Co.,** Shelby, O.

**Tumbling Barrels.**  
**Henderson Bros.,** Waterbury, Conn.

**Turnbuckles.**  
**Cleveland City Forge & Iron Co.,** Cleveland, O.  
**Merrill Bros.,** Brooklyn, E. D.

**Twine Cutters.**  
**Wild, A. L.,** Providence, R. I.

**Twist Drills, Makers of.**  
**Cleveland Twist Drill Co.,** Cleveland, O.  
**Morsell Twist Drill & Machine Co.,** New Bedford, Mass.  
**New Process Twist Drill Co.,** Taunton, Mass.  
**Standard Tool Co.,** Cleveland.

**Valves, Gas, Water and Steam.**  
**Best, Fox & Co.,** Pittsburg, Pa.  
**Chapman Valve Mfg. Co.,** Boston.  
**Jenkins Bros.,** 71 John, N. Y.  
**McNab & Hartin Mfg. Co.,** 55 John N. Y.  
**Mason Regulator Co.,** Boston, Mass.

**Ventilating Fans.**  
**Huvett & Smith Mfg. Co.,** Detroit, Mich.

**Ventilator Appliances.**  
**Howard & Morse,** 45 Fulton, N. Y.

**Vise Jaws.**  
**Newark Mch. Tool Co.,** Newark, N. J.

**Vises.**  
**Hollands Mfg. Co.,** Erie, Pa.  
**Howard Iron Works,** Buffalo, N. Y.  
**Millers Falls Co.,** 98 Reade St., N. Y.  
**Prentiss Vise Co.,** 44 Barclay, N. Y.  
**Tower & Lyon,** 95 Chambers St., N. Y.  
**Van Wagoner & Williams Co.,** 14 Warren St., N. Y.

**Wagon Jacks.**  
**Boston & Lockport Block Co.,** Boston, Mass.  
**and Lockport, N. Y.**  
**Covert Mfg. Co.,** West Troy, N. Y.  
**Covert's Saddlery Works,** Farmer, N. Y.

**Washers.**  
**Haskell, Wm. H. Co.,** Pawtucket, R. I.  
**Milton Mfg. Co.,** Milton, Pa.  
**Sternbergh, J. H. & Son,** Reading, Pa.

**Washing Machines.**  
**Buehler, M. H.,** Cincinnati, Ohio.  
**Neff, W. H.,** Cowan, Ind.  
**Olde Wagon Works,** Ft. Wayne, Ind.  
**Stearns Mfg. Co.,** Connersville, Ind.  
**Wayne, A. Mfg. Co.,** Ft. Wayne, Ind.

**Water Meters.**  
**Wright, H. Henry R.,** 86 & 88 Liberty St., N. Y.

**Water Wheels.**  
**Poole, Robt. & Son Co.,** Baltimore, Md.

**Well Boring Machines.**  
**Oil Well Supply Co.,** Pittsburg, Pa.

**Well Machinery.**  
**Well Works, Aurora, Ill.**

**Wheelbarrows.**  
**Akron Tool Co.,** Akron, O.  
**Amer. Steel Scraper Co.,** Sidney, Ohio.  
**Cockburn Barrow & Mch. Co.,** Jersey City, N. J.  
**Kilbourne & Jacobs Mfg. Co.,** Columbus, Ohio.

**Lansing Wheelbarrow Co.,** Lansing, Mich.  
**Sidney Steel Scraper Co.,** Sidney, O.  
**Sweet Mfg. Co.,** Minneapolis, Minn.  
**Toledo Wheelbarrow Wks.,** Toledo, O.

**Whips.**  
**American Whip Co.,** Westfield, Mass.

**Window Cord, Makers of.**  
**Samson Cordage Works,** Boston, Mass.

**Wire, Manufacturers of.**  
**Amer. Spiral Spring Co.,** Pittsburg, Pa.  
**Consolidated Steel & Wire Co.,** St. Louis, Mo.  
**Gautier Steel Department of Cambria Iron Co.,** Johnstown, Pa.  
**Miller & Van Winkle,** Brooklyn, N. Y.  
**New Castle Wire Nail Co.,** New Castle, Pa.  
**New Haven Wire Mfg. Co.,** New Haven, Conn.  
**Salem Wire Nail Co.,** Salem, O.  
**Trenton Iron Co.,** Trenton, N. J.  
**Washburn & Moen Mfg. Co.,** Worcester, Mass.  
**Wetherell Bros.,** 98 Liberty St., N. Y.  
**Wolf, R. H. & Co., Ltd.,** 118th St. and Harlem River, N. Y.  
**Wright & Colton Wire Cloth Co.,** Worcester, Mass.

**Wire Cloth.**  
**Barnum, E. T.,** Detroit, Mich.  
**Clinton Wire Cloth Co.,** Clinton, Mass.  
**Darby, Edward & Sons,** Philadelphia.  
**Estey, W. S.,** 65 Fulton, N. Y.  
**Gilbert & Bennett Mfg. Co.,** 42 Cliff, New York.  
**Howard & Morse,** 45 Fulton, N. Y.  
**N. J. Wire Cloth Co.,** Trenton, N. J.  
**Reliance Wire & Iron Wks.,** Milwaukee, Wis.  
**Scheeler & Sons,** Buffalo, N. Y.  
**Wickwire Bros.,** Cortland, N. Y.  
**Wright & Colton Wire Cloth Co.,** Worcester, Mass.  
**W. S. Tyler Wire Works Co.,** Cleveland.

**Wire Cutters.**  
**Crunk Hanger Co.,** Elmira, N. Y.  
**Higginson Edw. Co.,** Higginson, Conn.  
**King, J. M. & Co.,** Watertown, N. Y.

**Wire Dies.**  
**McFarland, Wm.,** Trenton, N. J.  
**Newton & Shipman,** 83 John, N. Y.

**Wire Door Mats.**  
**Hartman Mfg. Co.,** Beaver Falls, Pa.  
**The Wire Goods Co.,** Worcester, Mass.  
**White Mfg. Co.,** Minneapolis, Minn.

**Wire Fences.—See Fencing, Iron and Wire.**

**Wire Goods, Manufacturers of.**  
**Darby, Edward & Sons,** Phila.  
**Gilbert & Bennett Mfg. Co.,** 42 Cliff St., N. Y.  
**Ludlow-Saylor Wire Co.,** St. Louis.  
**Ossawann Mills Co.,** Norwich, Conn.  
**Scheeler & Sons,** Buffalo, N. Y.  
**Whitman & Barnes Mfg. Co.,** Syracuse, N. Y.  
**Wire Goods Co.,** Worcester, Mass.  
**Wickwire Bros.,** Cortland, N. Y.  
**Williamson, C. T. Wire Novelty Co.,** Newark, N. J.

**Wire Machinery.**  
**Am. Tool Wks.,** Cleveland, O.  
**Marville, E. J. Mch. Co.,** Waterbury, Ct.  
**Morgan Construction Co.,** Worcester, Mass.  
**Waterbury Mch. Co.,** Waterbury, Conn.

**Wire Straightening and Cutting Machinery.**  
**Adt, John & Son,** New Haven, Conn.

**Wire Nails.**  
**Consolidated Steel & Wire Co.,** St. Louis, Mo.  
**Indiana Wire Fence Co.,** Crawfordsville, Ind.  
**Kilmer Mfg. Co.,** Newburg, N. Y.  
**New Castle Wire Nail Co.,** New Castle, Pa.  
**Phillips, E. & Sons,** South Hanover, Mass.  
**Phillips, Townsend & Co.,** Phila., Pa.  
**Plymouth Mills,** Plymouth, Mass.  
**Salem Wire Nail Co.,** Salem, O.  
**Whitney, A. R. & Co.,** New York City.

**Wire Rops, Steel.**  
**Consolidated Steel & Wire Co.,** St. Louis, Mo.  
**Illinois Steel Co.,** Chicago, Ill.  
**New Castle Wire Nail Co.,** New Castle, Pa.  
**Washburn & Moen Mfg. Co.,** Worcester, Mass.  
**Whitney, A. R. & Co.,** 17 B'way, N. Y.  
**Wolf, R. H. & Co., Ltd.,** 118th Street and Harlem River, N. Y.

**Wire Rope, Iron and Steel Makers.**  
**Frederick & Bascom Rope Co.,** St. Louis, Mo.  
**California Wire Works,** San Francisco.  
**Hazard Mfg. Co.,** Wilkesbarre, Pa.  
**A. Leschen & Sons,** Rope Co., St. Louis.  
**Trenton Iron Co.,** Trenton, N. J.  
**Washburn & Moen Mfg. Co.,** Worcester, Mass.  
**Williamsport Wire Rope Co.,** Williamsport, Pa.

**Woodenware.**  
**Tucker & Dorsey Mfg. Co.,** Indianapolis, Ind.

**Wood-Working Machinery.**  
**Fay, J. A. & Egan Co.,** Cincinnati, O.  
**Seneca Falls Mfg. Co.,** Seneca Falls, N. Y.

**Wrenches, Manufacturers of.**  
**Bemis & Call Hardware & Tool Co.,** Springfield, Mass.  
**Billings, Spencer & Co.,** Hartford, Conn.  
**Capitol Mfg. Co.,** Chicago, Ill.  
**Central Iron & Steel Co.,** Brazil, Ind.  
**Cox Wrench Co.,** Worcester, Mass.  
**Gendron Iron Wheel Co.,** Toledo, O.  
**Keystone Mfg. Co.,** Buffalo, N. Y.  
**Portsmouth Wrench Co.,** Boston, Mass.  
**Tower & Lyon,** 95 Chambers St., N. Y.  
**Trimont Mfg. Co.,** Roxbury, Mass.  
**Williams, J. H.,** Brooklyn, N. Y.

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Birmingham Iron Foundry.	25	Cleveland City Forge & Iron Co.	1	Fitch, W. & E. T.	117	Illinois Iron & Bolt Co.	50
Bissell, E. Son & Co.	64	Cleveland Rubber Works.	82	Fitzburg Machine Works	49	Illinois Pure Aluminum Co.	92
Blake & Johnson.	13	Cleveland Stamping & Tool Co.	93	Fitzgerald, S. C.	6	Illinois Steel Co.	21
Bliss Co., E. W.	42	Cleveland Stone Co.	59	Fitzsimons & Co.	18	Indiana Bicycle Co.	88
Boardman, L. & Son.	71	Cleveland Twist Drill Co.	54	Flagg, Stanley G. & Co.	118	Indiana Wire Fence Co.	3
Bogert, John L.	59	Clinton Wire Cloth Co.	8	Foley, J. W. & Co.	55	Ingersoll Milling Machine Co.	47
Boker, Hermann & Co.	19	Cobb & Drew.	13	Foos Mfg. Co.	45	Ives, H. B. & Co.	104
Boone, W. C. Mfg. Co.	29	Cockburn Barrow & Machine Co.	107	Forehand Arms Co.	88	Jacobus, W. H.	110
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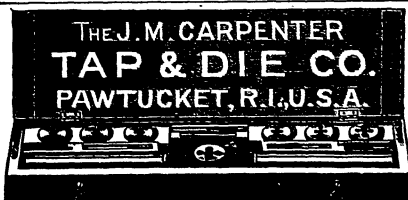
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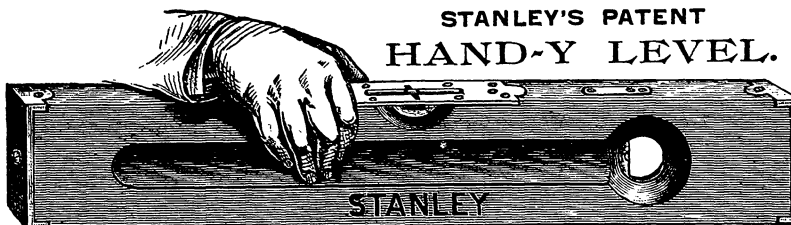
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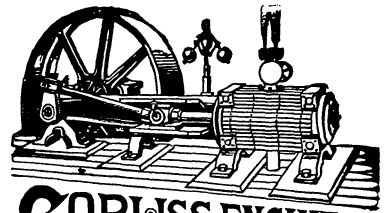


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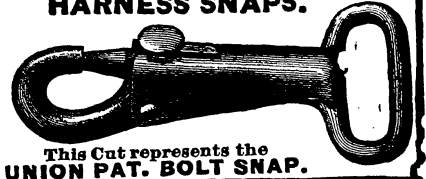
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# THE IRON AGE

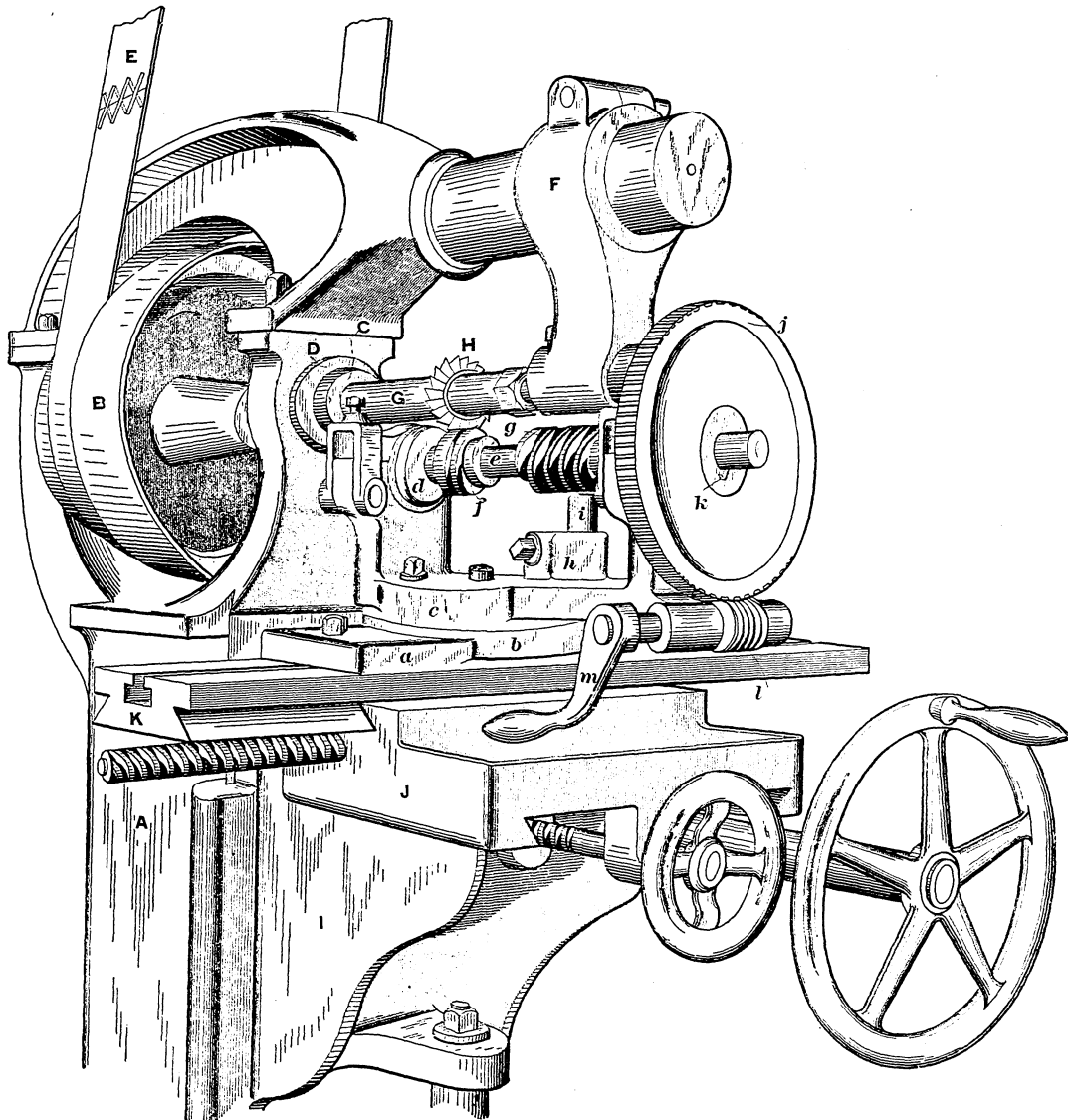
THURSDAY, JULY 20, 1893.

## Machine for Cutting Worms.

This machine has proved very successful and has been used for cutting all kinds of worm gearing in the Knowles Loom Works of Worcester, Mass. The principal feature of the machine (which is the invention of G. H. Nutt) consists in providing an ordi-

K by the bolts shown, and is provided with a circular portion, *b*, upon which is mounted to rotate upon a pin the main frame *c* of the attachment. This frame is rotated on the base to bring the work to be operated on into the proper angle with the cutter. It is clamped in any desired position by a screw. Mounted in pipe boxes, *d*, in the upright arms of the frame is the

Meshing with the worm gear is a worm, *l*, mounted on a shaft provided at one end with the crank handle *m*. By this mechanism the arbor *e* may be turned in its journals to feed the blank against the cutter. As the arbor is free to slide as well as revolve in its boxes, the blank will have a thread cut upon it corresponding with the thread of the pattern worm; the pattern worm with the arbor



MACHINE FOR CUTTING WORMS.

nary milling machine with an attachment for holding, adjusting and feeding the worm blank. Referring to the drawing, A is a part of the frame of the milling machine; B is the cone pulley mounted on the spindle C, which is journaled in the boxes D, and driven by the belt E; F is the clamp arm, in the lower end of which is fitted the cutter arbor center; G is the cutter arbor and H the cutter; I is the knee sliding on dovetailed ways for the vertical adjustment of the machine to the work; J is the knee saddle or main slide upon which is mounted the cross slide K, both being worked in the usual way by hand wheels.

The base *a* of the supplemental attachment is secured to the cross slide

arbor *e*, upon which is fastened the blank *f* to be cut and the pattern worm *g*, which has been previously in a lathe to the pitch of thread desired to be cut on the blank. Fitted to turn adjustably in a hole in the hub *h*, cast on the frame, is a pattern worm guide pin, *i*, the upper end of which is shaped to fit the thread on the pattern worm. The pin is held in proper adjustment by the set screw shown. The pipe boxes of the arbor are held in position on the frame by caps hinged at the rear side of the upright arms and clamped to the frame arms by yokes fitted with clamp set screws. The forward pipe box is cast with the worm gear *j* and is splined to receive the key *k*, which slides in a spline in the arbor *e*.

being moved along by the action of the stationary guide pin *i*.

The Cramps have received a check from the Government for the sum of \$900,000, of which \$700,000 was in payment for work on the "New York," and \$200,000 for the bonus earned by that boat for exceeding the required speed.

Boston advertises for bids for the construction of a dam across the valley of Stony Brook. This will make a basin holding 7,500,000 gallons. The work must be finished by November 1, 1896.

## Iron and Steel at the World's Columbian Exposition.

BY E. C. POTTER, CHICAGO.

### III.

To consumers of iron and steel in this country the name of Otis is synonymous with the highest grade of material. The products of the Otis Iron and Steel Company, especially in plates, have long been the standard for comparison. The very gateways to their exhibit in the Transportation Building furnish ocular evidence of the quality of their product and the torture it will endure. These portals, two in number, are each fashioned from a single plate and pressed into the shape of a flanged arch, the same pressure that formed the flange also forming out of the solid sheet over the doorway the legend "Otis" in bold relief. The raising of these letters out of the plain surface of the sheet is a beautiful test of the material. Within the inclosure is a very complete and interesting display of the company's products. Wire and wire rod drawn from the Otis steel is shown in all sizes. Two bundles of wire rod, each containing a continuous rod 1 mile in length, are among the remarkable things shown. Locomotive and car axles are shown, both in finished form and illustrating the effect of the bending test. Crude steel in ingot, bloom and billet form is shown, illustrating the processes of manufacture. A large cast steel roll and pinion turned and dressed ready for use well illustrate the company's ability to turn out large and sound steel castings. The finished surfaces of these pieces give no evidence of flaw or blow hole. The steel-plate department, which is the principal branch of the company's business, is illustrated, in addition to the portals, by a large boiler head, 120 inches in diameter,  $\frac{3}{4}$  inch thick and weighing 3300 pounds.

Adjoining the Otis exhibit is that of William Wharton, Jr., & Co. of Philadelphia, manufacturers of permanent way for street railways. This display consists of various sizes of girder rails, frogs and crossings, the largest being a 9 inch rail, the heaviest made in this country, and of which this firm were the originators. The Wharton system of street permanent way, as exemplified by this exhibit, recommends itself for strength and durability, besides illustrating some novel and ingenious features of construction. The principle of the well-known Wharton safety switch is cleverly applied, and in the construction of frogs and turn outs, the method by which the two rails are enveloped in cast iron, which is poured around them in a molten condition, forming the base and body of the frog, is a novel method of construction.

Alongside the exhibit of the Wharton Company is that of their chief competitor, the Johnson Company of Johnstown, Pa. This firm also exhibit numerous forms and sections of street girder rails, though not in so elaborate a manner as the Wharton Company.

A prominent exhibit in the Transportation Building is that of the Pennsylvania Steel Company, which consists of a section of elevated railway structure, showing bridge construction, and upon which is a complete installation of their system of automatic interlocking switches and signals. This exhibit further includes a large variety of both standard and girder rail sections and splices, prominent among which is the new P. R. R. 100-pound

rail rolled at the company's Maryland works, as well as a large assortment of frogs and switches.

The Schoen Mfg. Company of Pittsburgh display a large variety of pressed steel shapes for use in railway construction and equipment, designed as a substitute for the cast iron and wood parts so commonly used. The increased strength, lightness and durability of these parts made of pressed steel are rapidly bringing them into general use. Pressed steel brake-beams, journal boxes and center-bearing plates for cars and steel ties for permanent way are among the more commonly used of these pieces.

In line with this same idea—namely, the substitution of steel for other materials in railway appliances and equipment—is the exhibit of the Sargent Company of Chicago—formerly the Congdon Brake Shoe Company. This firm display a full assortment of cast-steel brake shoes and vertical plane car couplers, and, in addition, a large variety of miscellaneous steel castings, among which are noticed numerous gearings of different shapes and sizes up to 3 and 4 feet in diameter. The perfection of all these various castings is evidence that at last castings of almost any required shape or size can be executed in steel with the same nicety that has hitherto been looked for only in iron.

The New Jersey Iron & Steel Company of Trenton, N. J., have for their *piece de resistance* a working model of the draw span of the Chicago, Burlington & Quincy Railroad bridge across the Mississippi River at Burlington. This is a double track span of 356 feet 6 inches in length, and the model shows the bridge and turn table complete in motion. Their exhibit also includes models and parts of other bridge structures executed by the company, and a very large variety of structural shapes in section handsomely mounted. An important feature of the exhibit is the display of chains, of which the company are large manufacturers, from the cable of a battle ship to a poodle dog chain.

The Trenton Iron Company which, with the foregoing, is a property of Cooper, Hewitt & Co. of New York, display a large variety of wire, rope and cables, together with their system of carriage of materials by overhead wire cables. This system is to be seen actually at work in the grand square south of the Transportation Building.

The Standard Steel Works of Philadelphia have a very interesting exhibit of car wheels and steel tires. The feature of this exhibit is the illustrations of the various steps in the process of manufacture of tires and wrought iron wheel centers, together with etchings of sections of the crude and finished product showing its structure. Longitudinal sections of steel ingots from which tires are made are shown polished and etched, disclosing the piping and blow holes, which in former years have given much trouble in the finished tire by pitting and excessive wear, which is well illustrated by an etched section of such a tire. By a long series of experiment and investigation in the manner shown it has been found possible to wholly eliminate the piping with the result of almost uniformly sound tires. The detail of manufacture of wrought iron wheel center is shown and several etchings of cross sections of the finished wheel show how well the material is arranged with reference to the strains the wheel must endure in service. In comparatively small space the whole manufacture of these commodities is

well illustrated and the exhibition is one of great interest.

The California Wire Works of San Francisco make a large display of wire in all sizes, wire cables, barbed wire fencing and nails. Considerable taste has been displayed in the arrangement of this exhibit and in the disposition of material which does not readily lend itself to artistic purposes.

The United States Car Works, whose works are situated at Chicago, Anniston, and New Decatur, Ala., and Urbana, Ohio, have a very complete exhibition of car and locomotive axles extended so as to include all the processes of manufacture, such as coal, iron ore and pig iron used in the puddling process, the resulting puddled bloom, hammered blooms, the flat bars from which the axle pile is made and interlocking bars. These last are an element in the manufacture of locomotive axles from the so called "interlocking sectional pile" (patented). These bars, rolled to a peculiar shallow V-shape, form, when laid together, a very close and solid pile, interlocking one with another, which is claimed to result in an axle of unusual strength and durability. An etched section of one of these axles well illustrates the interlocking structure. An exhaustive set of physical tests of material, both bars and axles, completes a very creditable display.

Three large German corporations have their exhibits in the Transportation Building—namely, the Phoenix Works, the Hoerder Verein and the Union Works of Dortmund. The Phoenix Works, situated near Ruhrort, are one of the largest in Germany. They employ 5000 men, and have an annual capacity of 230,000 tons of finished steel. One of their specialties is girder rails for tramways, of which they exhibit 45 different sections. They also make a full line of standard sections of rails and structural shapes.

The products of the Hoerder Verein consist mainly of girder tram rails, standard rails and splices, wrought wheel centers and tires and axles, and a large variety of bolts and nuts. They have an exhaustive display of the various sections and samples of their products handsomely mounted, though in a situation which does not show them to the best advantage.

The Union Works of Dortmund have a fine display of tires, wrought wheel centers and axles, standard rail sections and structural shapes. The manufacture of wheels and tires, more particularly the latter, is a large item in the steel industry of Europe, where the cast iron wheel is little used, all railway carriages, both freight and passenger, being equipped with the wrought wheel and steel tire. The consumption of tires approximates that of rails and is an important factor both to manufacturer and consumer.

An international exhibition will be held at Antwerp next year, opening in May and closing in September. It is to be an exhibition of industrial, scientific and artistic productions, as well as all kinds of commercial produce, embracing the whole range of human activity. Pending the exhibition and in connection with it the Antwerp Royal Society of Fine Arts will hold a special exhibition of painting, sculpture, engraving and architecture, to which artists of all countries will contribute. There will also be nautical, colonial and African exhibitions, meetings, conferences, musical festivals and other like features.

### High Speed Electric Locomotive.

The first electric locomotive of any considerable size in the United States and the first practically operative high speed electric locomotive in the world, adapted to the steam railroad, has recently been completed at the Lynn Works of the General Electric Company, and will shortly be exhibited at the World's Fair. Its completion marks a distinct advance in electrical development. It is a 30-ton locomotive, designed for a normal speed of 30 miles an hour, primarily intended for operation on elevated railways and for passenger and light freight traffic on less important steam roads. It is of compact construction, solidly and substantially built, and runs on four 44 inch wheels. Its dimensions are: 16 feet 6 inches long, 11 feet 6 inches high, 8 feet 4 inches broad, having its draw bars 2 feet 6 inches from top of rail, the Manhattan Elevated Railroad stand-

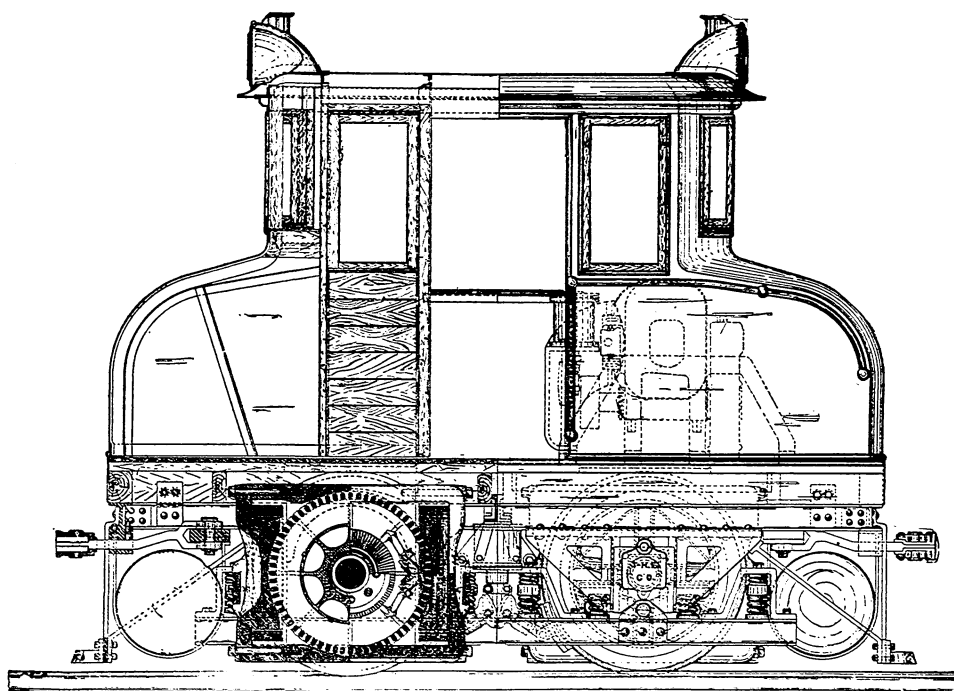
there are four sets of brushes to each commutator.

The motors are controlled by means of a series parallel controller, set up in the interior of the cab. This device embodies all the latest improvements made in this type of apparatus by the General Electric Company. Under test it is found that the series parallel controller allows of a more gradual and easier starting of the electric motor, and the speed can be more delicately and instantaneously controlled than in the case of the steam locomotive.

The truck, suspended from the journal boxes, is constructed of heavy I-beams and forms the foundation for the locomotive cab, of sheet iron, of symmetrical design, and so curved off as to diminish the atmospheric resistance as far as possible. The interior is finished in hard wood. The sliding doors are placed at each side of the cab, and the windows are so arranged as to permit of an unobstructed view in all directions. There is ample space in the cab

over very long distances is at present limited only by the cost of long lines of electric feeders, and until the problem offered by this condition is solved restriction of its employment must necessarily exist. But for places comparatively near each other and where traffic is dense, the denser the better, the electric locomotive is peculiarly adapted, for here all the advantages of electric propulsion are available, unhampered by the extreme expense involved in long feeder lines.

The evolution of the use of the electric locomotive will probably follow along the lines dictated by expediency and favoring conditions. At first they will probably be used in elevated railroad service, and in New York, Brooklyn and Chicago their advent will be hailed with a feeling of deep gratitude. They will then probably be adopted as feeders to the trunk lines, both for freight and passenger traffic; and to operate short suburban lines, where a rapid efficient service is requisite. Their



HIGH SPEED LOCOMOTIVE, BUILT BY THE GENERAL ELECTRIC COMPANY.

ard height. The draw-bar pull is calculated at 12,000 pounds.

The propelling power is furnished by two electric motors of special design and construction, each axle being provided with one motor. The motors are gearless, and are supported on spiral springs resting on the side frames of the locomotive truck. This method of suspension leaves the wheels free to adjust themselves to the irregularities of the road bed, and consequently the wear to both tracks and motors is diminished.

The motor fields consist of massive iron castings, to which the hollow field spools are bolted. The armatures are of the iron-clad type, having each separate winding embedded in a mica-lined slot cut into the curved surface of the laminated iron armature body. The axles of the locomotive pass through the hollow shafts on which the armatures are mounted. These shafts rest in bearings of the motor frame, and are connected to the axles by universal couplings, which allow of freedom of motion in all directions. The commutators are of massive construction, and

for the motorman's movements, and it affords him considerably better protection than that usually vouchsafed the steam locomotive engineer. The position of the head lights is shown in the engraving.

The air for the brake is supplied by a special electrical air compressor, which also operates the whistles. This air pump has an oscillating cylinder of 6 inches diameter with a 6-inch stroke, supplying 6000 cubic inches of air per minute at 70 pounds pressure. The motor is similar to the N. W. P. 2½ in general appearance, but is wound for a higher speed. The normal speed of the armature shaft is 675 revolutions and of the crank shaft of the pump 110 revolutions. The dimensions of the air compressor are: Length, 41 inches; width, 16½ inches, height, 25 inches. The pump motor is controlled by a special rheostat. This, by an intermediary device, is automatically regulated by the air pressure.

This locomotive has been designed for a normal speed exceeding 30 miles per hour. The use of these locomotives

peculiar fitness for switching purposes will advance their use another step, and then slowly, as the different problems presented are overcome, they will invade the province of the trunk line steam locomotive, and the millennium of railroad travel will be within the realities of life.

Information has been received by the Bureau of American Republics that the telegraph system of the Isthmus of Panama is being rapidly extended. Communication has been established between the city of Panama and Capira, and it is expected that by the end of the year the service through to Chiriqui will be working. When the line shall have been completed to Chiriqui, on the western limits of the State of Panama, only an unimportant connection will be needed to unite with the service already in operation in Costa Rica. When this is done, direct communication will have been established between the city of Panama and the capitals and principal towns of the Central American States.





### Copper in Japan.

Although a very ancient industry, copper mining in Japan has become important only since European methods of mining and ore treatment have obtained wide recognition. For a number of years Japanese mines and reduction works were in charge of foreigners, who introduced European and American methods, but for a number of years past the works are under practically exclusive Japanese control.

Very little attention was paid by the copper trade of the world to doings in Japan until increasing quantities of metal began to be offered in English markets. Even the highest authorities seem to possess meager information concerning the magnitude of Japanese copper interests or of the character of deposits and other data bearing on the question of the ability of Japanese producers to meet the world's markets. Especial interest, therefore, attaches to a volume entitled "The Mining Industry of Japan," issued by Wada Tsunashiro, director of the Mining Bureau at Tokyo. It gives production statistics, goes into the geology of Japan, and presents descriptions of a number of the leading mines of the country. How rapid has been the expansion of production in that country may be gathered from the following statistics covering the period of 1881 to 1890, inclusive. During the same period the exports were as follows:

#### Copper Production in Japan.

	Production. Pounds.	Exports. Pounds
1881.....	10,603,601	
1882.....	12,479,955	6,058,080
1883.....	15,054,690	5,252,053
1884.....	19,751,906	11,517,308
1885.....	23,223,281	17,994,956
1886.....	21,718,857	21,242,302
1887.....	24,565,519	18,990,821
1888.....	29,720,190	21,433,206
1889.....	36,119,364	22,446,903
1890.....	40,256,433	43,135,474
1891.....		38,501,311

It may be of interest to state the direction which the export movement has taken during the past few years. The following table, covering the years 1889, 1890 and 1891, in detail show that China is by far the greatest customer of the Japanese producers, and that the shipments to Great Britain undergo very violent fluctuations:

	1889.	1890.	1891.
British India....	4,287,132	467,904	1,815,936
China.....	6,811,225	3,385,004	8,002,599
Hong-Kong....	3,815,211	15,424,437	21,144,781
Corea.....	1,954,417	2,112,900	1,368,473
France.....	435,661	444,144	240,840
Germany.....	1,075	313,887	233,544
Great Britain....	5,072,111	20,903,329	2,616,502
Other countries.....	91	3,869	8,656
Total.....	22,446,923	43,135,474	38,501,311

A moderate proportion of the copper produced in Japan is obtained from mines the principal reliance of which is the silver contents of the ore. This is notably the case with the Sado, Towada, Omori, Mozumi and Hadasa mines. The principal districts, however, depend upon moderately low grade ores for their product. Thus, the Ashio mines produced in 1890, 13,111,272 pounds; the Ani and Arakawa groups made 5,842,254 pounds, and the Besshi, 5,910,011 pounds. There are a number of other mines producing 1,000,000 to 2,500,000 pounds each annually, details concerning which are given in the volume referred to. At a number of them the old Japanese methods are still in vogue, but it appears that they are being supplanted by improved European and American appliances as rapidly as possible. We ob-

serve that American water-jacket furnaces and dressing machinery are very largely employed. Full costs are rarely given, but in a number of instances isolated figures relating to the cost of mining or the cost of dressing or of metallurgical treatment are presented, which indicate an ability to place metal on the market at very low figures. The indications are, therefore, that Japan will continue to expand as a producer of copper, and may be expected to become an increasingly important factor in the world's markets of that metal.

### Testing a Field Telephone Line.

The Signal Office at Washington has been conducting some interesting experiments with a field telephone line imported from France. The line used is known as the Charalloy equipment. A special conductor is used, and the wire is bimetallic, with steel core covered with copper. Captain C. E. Kilbourne of the Signal Corps states that the wire is stronger and less oxidizable than the wires in ordinary use. It is used in connection with ordinary magnetic telephones, no battery or microphones being used. It is claimed by the inventor that communication has been had through a length of twelve and a half miles of this wire, and that communication has not been interrupted when the wire is unwound naked upon the wet or dry ground, or even upon grass covered with dew, or when the wire is submerged in water for a certain length.

A Charalloy outfit, consisting of two telephones, one reel and the wire, were experimented with a few days since. Half a mile of naked wire was unwound upon the grass. The earth was quite moist, sufficiently so as to have made a ground for a telephone wire. No difficulty was experienced in conversing through this wire. The wire was then wound around an iron hoop, and even this did not interrupt the conversation. The voice sounded much more distinct when one of the service or Crown telephones was used in place of the French instrument.

Later there was another test, when a mile of wire was run out, 30 feet being submerged in water. No communication could be had, but the instant the wire was drawn up clear of the water the difficulty disappeared.

On the third test the wire was tramped in the grass and earth, which were thoroughly soaked with water. The experiment was entirely satisfactory, conversation being had in an ordinary tone of voice. There is no necessity for using any kind of telephone which requires a battery, as the common magnetic telephone will prove a satisfactory instrument both as transmitter and receiver. Captain Kilbourne believes that conversation can be depended upon for distances up to 12 or 15 miles.

One important result of the armor-plate tests made at Indian Head last week will be to extend the use of the Harvey process. The tests were satisfactory as far as they went, but the Secretary of the Navy is reported to have reached the conclusion that, while the plates were as good as could be expected from plain nickel steel, they did not show the resisting power of Harveyized nickel-steel plate. This will mean much to the manufacturers of armor plate. The contracts under which the plates are made permits cer-

tain pieces to be made of plain nickel steel. The reason for this is that the Harvey process is very difficult of application to curved plates or pieces of irregular form. Such pieces are very apt to warp when submitted to the process, and as they emerge with a surface almost as hard as a diamond it is said by the plate makers to be next to impossible to do anything with them in the way of manipulation. The warping frequently throws the bolt holes out of line and distorts such pieces as the sponsons, the semi-cylindrical pieces that protect the guns on the side of a ship, so that they will not fit, and the work of adjustment is very difficult and tedious, as few tools can be made to cut the hardened plates.

### Qualities of Smokeless Powder.

Much experimental work in the direction of obtaining a satisfactory smokeless powder had been done at the recently burned naval gun cotton factory at Newport. It is probable that taking into consideration the good results already obtained that we shall soon see smokeless powder used in all the ordinary guns of the navy. The qualities that are aimed at in the smokeless powder manufactured for our navy have been thus officially expressed:

First, progressive rate of burning, so that a high initial velocity of the projectile may be obtained without undue straining of the gun; second, uniformity, or, in other words, complete physical and chemical homogeneity, so that charges of equal weight will always produce the same ballistic effects under the same circumstances; and, third, permanency—that is, that the powder shall not deteriorate while stored or when subjected to considerable changes of temperature.

The first of these qualities, as appears from published reports, has been obtained in many of the foreign powders. Although they differ to some extent among themselves in the ballistic effect produced, it may be granted that a number of them give excellent velocities with quite moderate pressures. An examination of the powders, however, discloses a decided lack of homogeneity in many of them, so that it is not surprising that the results of firing equal charges show marked variations.

But it is in the quality of permanency that the foreign powders are deficient. They deteriorate, become sensitive and develop unexpected pressures. The reason for this is not difficult of determination when the constitution of the powders is known. It is due to one or both of two causes: 1. The use of substances which are unstable at all temperatures. 2. The addition of a volatile constituent which, by its evaporation, changes the constitution of the powder.

The tests of the powder produced at this station have shown it to possess unusual ballistic qualities. A charge of 42 grains fired in a small caliber (0.301 inch) rifle imparts to a bullet weighing 215 grains a mean observed velocity, at 60 feet from the muzzle, of 2100 feet per second, with a chamber pressure of about 12 tons to the square inch. The grade of powder adapted to the 3-pounder rapid-fire gun gave a muzzle velocity of 2250 feet per second, with a chamber pressure of 14.8 tons. In the 6-pounder Hotchkiss gun a velocity of 1920 feet per second was obtained with a chamber pressure of 14.3 tons.



The Smith Piston Packing.

Pistons provided with the ring packing here illustrated, which is the invention of M. M. Smith of Clay and Oakland streets, Brooklyn, N. Y., have been in successful use for some time on the engines of the Brooklyn Wire Nail Company. The springs are inclosed in casings or blocks, which are so made that when the springs have yielded all that may be necessary, the blocks will meet and relieve them from any excessive compression resulting from the knocking of the piston in the cylinder. Referring to the drawings, Fig. 1 is a transverse section of a cylinder and piston, Fig. 2 is a section at right angles to Fig. 1, and Fig. 3 shows a modified form of packing. The springs E are inclosed in the casings, F F, which are adjusted by means of the screws, G, secured by the nuts G'. The casings are provided with dowel or guide pins to keep them in proper relative position, and are so made that when the springs have been adjusted to the desired tension the casings will be separated just enough to permit the free passage of the piston B in the cylinder A. Thus by the closing of the parts F F' of the

well tools, which is covered by three patents held by the plaintiff. The court held several of the claims in two of the plaintiffs' patents had been infringed by the devices used by the defendant, and a decree against him was directed to be drawn. In the other case on other devices, for which Forgie claimed to have patents, the court held his patent is invalidated because of the non-patentability of the device. Judgment for the defendant was therefore given.

Baldwin Compound Locomotive.

In a recent paper before the Engineers' Club of Philadelphia by S. M. Vauclain, the inventor of the compound locomotive built by the Baldwin Locomotive Works, we find several statements of unusual interest. Although the compounding of locomotives has been practiced by some of the most prominent engineers of Europe for a considerable period, the year 1889 found this type of engine yet in its experimental stage. These engines differed widely, not only in type or system, but also in the details of construction. Americans were watching these improvements very closely and

under a full head of steam as when steam is shut off." Another advantage of this type is that both sides of the locomotive are the same. Mr. Vauclain expects that time will prove that this locomotive will require less repairs than single expansion locomotives, the fact being that the boilers of compounds do not require the attention or repairs that are necessary to their overworked comrades.

An interesting statement as to the rapidity of introduction of these locomotives is made. This compound was designed in 1889 and is now in use on 68 different railroads of the world and constitutes 40 per cent. of the business of an establishment having a capacity of 1000 locomotives per annum. Returns made by some of these roads have shown an economy ranging from 26 to 44.9 per cent. The history of this engine proves again that a bright idea that is mechanically well executed is sure of quick and wide adoption.

The rates for freight carriage by lines operating on the great lakes have been reduced to such an extent that the Lake Carriers' Association have issued a new card of wages to take effect immedi-

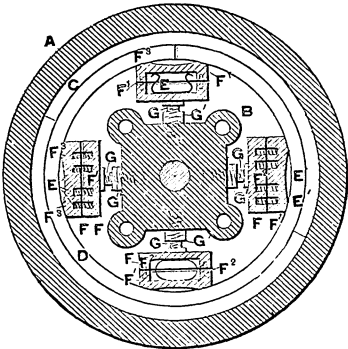


Fig. 1.

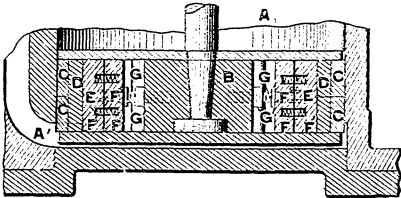


Fig. 2.

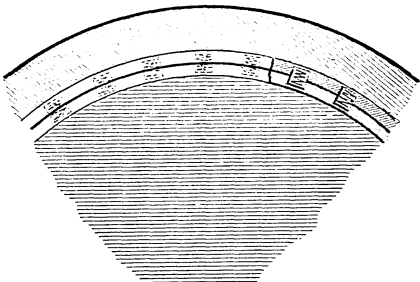


Fig. 3.

THE SMITH PISTON PACKING.

casings the natural vibrations of the springs are interrupted and the lateral rebounding of the piston prevented; notably at the end of the stroke when the steam is suddenly admitted through the part A', which is at one side or top of the cylinder. The outer surface of the casing F' is fitted to the curved inner surface of the ring D at the ends F', but is left slack in the middle so as to allow the ends of the ring to act freely and naturally. Although the springs may be of any suitable form, it has been found that plan helical form, of such size that a number may be placed in each casing, as shown, gives efficient results.

In the modified form, shown in Fig. 3, two segmental rings, the parts of which are of suitable length, are formed with corresponding recesses to receive the springs, as plainly illustrated by the drawing.

In the United States Circuit Court at Pittsburgh last week opinions were handed down in two suits for infringement of patents. One case was that of the Duff Mfg. Company against William Forgie, and the other that of William Forgie against the Duff Mfg. Company and the Oil Well Supply Company. The first suit was on a jacking mechanism for screwing and unscrewing oil-

at the same time were busy devising something entirely new — something that would "establish firmly the fact that compound locomotives can be so constructed that they will be more economical in every way than the single expansion locomotive that has been our friend and sole reliance for 60 years."

It is evident that the compound locomotive, no matter of what design, must, in order to be successful, be so arranged that the cost of repairs will not so much exceed those made to the single expansion engine as to offset any economy in fuel consumption. This means that, in order to derive the full benefit from multiple expansion, the compound must be simple in design and durable. The Baldwin compound meets these requirements. Its chief peculiarity is that the high and low pressure cylinders are cast together, are parallel and placed vertically one above the other as may be desired, the supply and distribution of steam of both cylinders being governed by one piston valve working in a steam chest cast solid with the cylinders and half saddle. This valve is not only perfectly balanced, "but it is the only valve that can be successfully operated on a locomotive at 200 pounds steam pressure. The friction is scarcely perceptible. The reverse lever can be handled as easily

ately. The card adopted for steamers is as follows:

First-class (metal steamers having water bottoms and triple expansion engines):	
Chief engineer.....	\$100 to \$115
Second engineer.....	65 to 75
Second class (metal steamers not included in class 1, and wooden boats with triple expansion and compound engines, except the smaller boats which may be included in class 3):	
Chief engineer.....	90 to 100
Second engineer.....	60 to 70
Third-class (smaller boats with high pressure or low pressure engines, or with compound engines, averaging all boats not included in the two former classes):	
Chief engineer.....	70 to 90
Second engineer.....	55 to 60
First mate.....	60 to 70
Second mate (when carried)...	40 to 45
Cook.....	40 to 45
Helpers.....	15
Firemen.....	25 to 30
Wheelmen.....	25 to 30
Lookouts.....	25 to 30
Deckhands.....	15
Oilers (when carried).....	30

The schedule for consorts and sailing vessels is:

First mates.....	\$40 to \$55
Second mates.....	30 to 40
Cooks.....	25 to 30
Seamen.....	25 to 30
Boys.....	15

The experiments in road making by the prisoners of Clinton Prison are likely to prove successful.

## WORLD'S FAIR NOTES.

### The Judges.

Much dissatisfaction was expressed last week because the names of the appointees for judges were not announced in all the departments. Those appointed for the department of electricity are as follows: H. S. Carhart, Ann Arbor; H. J. Ryan, Pennsylvania; B. F. Thomas, Columbus, Ohio; George F. Barker, Philadelphia; T. C. Mendenhall, Washington, D. C.; Robert E. Owen, Lincoln, Neb.; Michael O'Dea, Notre Dame, Ind.; W. M. Stein, Chicago; Samuel Reber, United States Army; H. A. Rowland, Baltimore, Md.; E. P. Warner, Chicago.

The judges had been appointed because they were expected to get together on Saturday in the different buildings and organize for work.

### Scotchmen Come Here to Learn.

One of the most noteworthy arrivals at Jackson Park last week was "The Artisan Expedition to America," projected by the *Courier* and the *Weekly News* of Dundee, Scotland. The party consists of ten specialists in the departments of metallurgy, electricity, textile, shipbuilding, paper making, mining, building, transportation, agriculture, and wood working, under the conduct of James Murray, formerly chief reporter of the two newspapers. Its object is the acquisition of reliable information concerning the conditions of the American wage earners, how they live, what kind of houses they have, what hours they work, what leisure they enjoy, and what kind of food they get.

### Electricity Lectures Practically Illustrated.

Chief Barrett has arranged for a series of lectures in Electricity Building that are expected to prove a popular feature of World's Fair education. The lectures will be given daily by experts in charge of exhibits, each man selecting the subject in which he is best equipped for discussion. After each lecture the audience will accompany the speaker to the exhibit that has been under discussion and a practical illustration of the talk will be made.

Most of the exhibitors in Electricity Hall have agreed to assist Chief Barrett in carrying out his plan, and he is confident that the course will prove of great interest to students of electricity.

### Attendance and Profits.

During the month of June the World's Fair cleared, above all expenses, \$1,017,898.94. The receipts for the second month, as returned by Auditor Ackerman, were \$1,660,820.21 and the expenditures \$642,921.27.

Contrasted with the first month of the exposition this result is all that the managers could desire and more. The receipts for May were \$719,402.71 and the expenditures \$609,883.87, leaving a profit for that month of only \$109,518.84. The profits for the second month were consequently ten times as great as for the first four weeks.

It is unreasonable to expect anything like that increase during any of the following months, but the gain is steady, and July will show a much wider margin of profit than June, which was fully up to the expectations of the managers. Aside from the large increase at the turnstiles, the returns from concessionaires will be much greater. The managers have settled most of the disputes

with concessionaires, who held back their funds waiting for compromises on account of the delay in getting their electric lights in place. The revenue from concessions is expected to reach \$20,000 or \$25,000 a day from now until the close of the fair. Mr. Ackerman's report, which closed June 30, shows that \$580,006.36 had then been realized from concessions. Since that date large payments have been made by shop keepers and others doing business on the grounds.

The report shows that \$1,286,675.26 was due contractors on July 1, but Mr. Ackerman says this was largely reduced after the report was made up. The largest amount due on any one contract was \$260,469.58 for the electric light plant. The heavy receipts by the fair are particularly gratifying on this account, because so many contractors were creditors after the gates were thrown open to the public. Quite a number of Chicago firms were put to great inconvenience by reason of the non-payment of their claims on the completion of work. The disbursements are a little late, but they will make the times more endurable.

### The Tin-Plate Exhibit.

In the Mines Building at the World's Fair, on the second floor at the south end, is found the display made by the American tin and terne plate manufacturers. Here all of the materials that enter into the production of tin plate are shown. There is the fuel used (no natural gas, of course), both coke and coal, with the pig iron, which becomes a billet, and next a tin-plate bar, then rolled into sheets of less and less thickness until the lightest black plate is shown, cleaned, ready for the plating of either lead for ternes or tin for bright sheets. A big glass bottle shows the palm oil, and a pile of brown dirt shows the tin as it comes from some mines, and a lot of stones or quartz rock shows the ore of other mines. Then the smelter is shown, with pigs of tin from the Temescal mines in California and Harney Peak mines in South Dakota. Lead ore and pigs of lead are also exhibited. Grouped around this display are boxes of both bright and leaded plates from the many tin-plate plants in this country, and that the piles of boxes are no higher is due to the demand for every sheet made.

The skill of the American tinner has been called in use to make the display complete by inclosing the space with an ornamental railing and balusters made of tin, and three pavilions, to show the elaborate effects possible with tin in columns, cornices, ceilings, walls and roofs. On a tin pedestal at one side is a glass case containing a full-rigged schooner made entirely of tin, and on the other side on a similar pedestal rests a column at the top of which is a globe with an eagle perched upon it holding a banner in its beak, the ends of which are attached to its outstretched wings, all made of American tin plate. This exhibit is in the charge of a gentleman connected with one of the large tin-plate plants, and who answers the many odd questions asked by the always inquisitive sightseers.

The following is a list of the makers who have contributed to make up the exhibit: American Tin Plate Company, Elwood, Ind.; Irondale Iron & Tin Plate Company, Irondale, Ohio; St. Louis Stamping Company, St. Louis, Mo.; U. S. Iron & Tin Plate Company, Demmler, Pa.; Columbia Tin Plate Company, Piqua, Ohio; Cincinnati Corrugating Company, Cincinnati,

Ohio; Cleveland Tin Plate Company, Cleveland, Ohio; Marshall Bros., Philadelphia, Pa.; Phillips Bros., Philadelphia, Pa.; E. Morewood & Co., Elizabethport, N. J., and Gas City, Ind.

### Progress in Steam Engineering.

Prof. R. H. Thurston, in his second article on the above subject in the *Engineering Magazine*, thus enumerates the problems remaining to be solved:

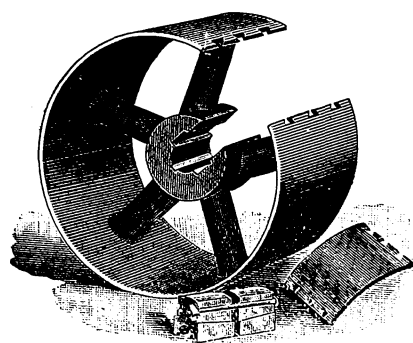
Securing fuel of minimum volume and weight with maximum heat-producing power, making boilers safe for still higher pressures, extending still more widely the range of thermodynamic transformation of the thermal into dynamic energy, reducing still further and greatly the wastes of the engine, especially its internal heat wastes, and concentrating the mighty power of steam into even less compass and weight. Liquid fuels give about twice as much power as the coals per pound and per cubic foot; boilers composed of many small chambers give greater safety, both from explosion and in case of explosion at high pressure; increased pressures, with further multiplication of engine cylinders, promise further economy, and superheating the steam, should this ever be found permanently and safely practicable, gives perhaps even greater promise in this direction; the better kinds of iron and especially of construction steels, the new alloys constantly coming into sight, and the more skillful use of materials by the designer, are conspiring to give further concentration of power both in weight and space, and there seems to be no reason to doubt that the immediate future holds out promise of continued, perhaps of still accelerated, advances in all these directions, and of as many astonishing changes in the coming generation as have distinguished that just passed.

For the moment, at least, the advances of the century have brought us to the construction of steam engines light enough to compete successfully with the motive organs of the birds; others economical enough to give us a horse-power for an hour with every 20 ounces of fuel burned in the boiler, and to carry a ton a mile, at sea, on the expenditure of a half ounce of coal; quick enough in their rotation to accompany the spinning armature of the dynamo-electric machine and to drive their dispersing energy over miles of wire, to give light or power to distant buildings or to cars loaded with a hundred passengers. The culmination of human ingenuity and skill seems to be presented in the new ocean steamers, weighing 10,000 to 12,000 tons, driven across the seas at the speed of 25 or more miles an hour by the power of 20,000 to 30,000 horse power; converting into that power the latent energies of the comparatively small quantity of coal that can be carried in their holds, besides their immense loads of cargo, and while transporting 1000 passengers with their almost as numerous attendants.

Should this progress culminate in the discovery of methods of direct conversion of the energy of chemical forces into mechanical power without those enormous thermodynamic losses now apparently absolutely inevitable between our coal beds and our various machinery, our own times will very probably stand to those of future ages as, in respect to intellectual development, the days of the ancient Greeks stand to later times.

### The Little Separable Pulley.

The use of divided or split pulleys for line shafting has of late years come into increasing favor, until it is at present almost universal. The great convenience of being able to place a pulley on any unoccupied portion of a shaft without removing the latter from its bearings or interfering in any manner whatever with the couplings or other pulleys already in position is more than sufficient to compensate for the additional cost of split over the older solid pattern. The Little pattern shown in the cut is radically different from any construction of divided pulley yet placed on the market. While retaining all of the advantages of the split form, it overcomes most of the objectionable features of the latter, without adding to its cost. The term "separable" is hardly distinctive of its characteristic peculiarity, as it would be equally applicable to the ordinary "split" arrangement. "Gap" pulley would probably be as expressive a term as could be employed, as the gap in the rim and



THE LITTLE SEPARABLE PULLEY.

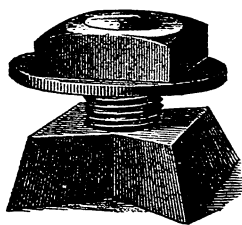
hub constitutes its essential feature. It will be seen by reference to the cut that after the pulley is once raised to its position on the shaft there can be no further difficulty, as it is then only necessary to insert the comparatively light hub piece to secure it in position, after which it may be turned around on the shaft to place it most conveniently for putting in and securing the detachable section of the rim. After this is done the pulley is accurately adjusted to its required position and secured on the shaft in all respects as though it were of the solid form.

The inception of the gap device was by no means a solution of the problem, as the principal difficulty lay in devising a satisfactory method of securing the detachable rim section. Numerous forms of fastening were tried, and all were open to objections more or less serious. It was not until the thought occurred to the inventor of using the double dovetail headed bolt and nut that the pulley could properly be considered in satisfactory shape to place on the market. The fastening bolt is shown in the enlarged view. It consists of a double dovetail head, tapered from the under side, so that when inserted in the corresponding dovetail recesses in the edges of the gap, the draft of the nut on the under side forces it firmly into position, the whole being turned off flush with the face when the pulley is finished. It will be seen that this fastening is very rigid, the pressure of belt being supported by the nuts and washers, while the tensile strain, due to

centrifugal force, is amply resisted by the dovetails. The construction of the hub block is so clearly shown as to need no description. The pulley is made by the McKinnon Pulley Company of Menasha, Wis., and is exhibited at the Fair, in Machinery Hall Annex, in Section 27, Cols. O 33 and 34.

### American Wire Nail Machines in Belgium.

A special Belgian correspondent writes us: Your talented compatriot M. M. Smith, the inventor and constructor of the American wire nail and tack machine, was so convinced of the merits of his nail machine that he had the pluck to leave his manufactory at Brooklyn in the hands of his trusted foreman and start off to see if he could not introduce his machines in Europe. As a reward for his enterprise he has succeeded in getting these machines in use in Belgium, and in two of the principal works here (Brussels) these machines are working to the satisfaction



of all parties. Of course the Belgian buyers could not be expected to take up the use of these machines without being convinced that there was a decided advantage, and to meet this difficulty Mr. Smith took a practical step and sent over a machine, which he set up here and was thus able to show the Belgians what they thought they knew before America was discovered—i. e., the way to make wire nails.

The trials were so very satisfactory that two machines were ordered by different manufacturers, and they gave them a few months' trial and were so pleased with them that further repeat orders have been given. At the present moment some eight machines are at work here, and considering that it is only a twelvemonth since the visit of Mr. Smith this may be considered a decided hit. Until quite lately German machines had the monopoly in Belgium, and it is eminently satisfactory to see that America can meet Germany on one of her strongholds.

In a new and important works here it is contemplated putting down a good many of these machines as soon as their new works are complete, and there is no doubt that Mr. Smith's machine, which was reviewed in your journal some months since, has a big future on the continent.

It is stated that franchises are being gradually secured with the ultimate object of connecting Philadelphia and Newark, N. J., by trolley railway lines.

### Cartridges for the Krag-Jorgensen Rifle.

The bullet for the new magazine gun will probably be one provided with a covering of nickel steel. The penetration of such a bullet is extraordinary and as the core and casing are well fused together, stripping is avoided. Experiments have shown that these bullets clean and polish the bore so that lubricators are not required and at the same time do not injure the rifling to the same extent as do the common bullets. The initial velocity of the new projectile, which is of 0.30 caliber, weighing 200 grains, is, with smokeless powder, about 2000 feet per second, whereas the old 0.45 caliber single loader, with its bullet weighing 500 grains, attained only about 1300 feet. The advantage of this extra speed may be inferred from the fact that if a soldier fires from a prone position at a target 500 yards away, the bullet rises only 4 feet above the earth at the highest point in the arc of flight, which is perhaps one-third of the rise of the heavier bullet. In other words, the entire distance of travel is danger space, and the destruction wrought in an enemy endeavoring to charge over it would be vastly increased by the use of the small bullet with smokeless powder, as compared with the present large caliber projectile, even without reference to the havoc due to the increased rapidity of fire with the magazine arm. The penetration is, of course, much greater with the new bullet, which in addition retains its shape perfectly. Further than this the steel bullet is considered less deadly than the other. If it strikes a bone it is more likely to pass through without shattering. The new bullet would easily go through two men, one behind the other.

Industry of San Francisco states that J. L. Heald, of "Heald's Works on Carquinez Straits," has furnished some information respecting the removal of encrusted oil from steam boilers that is just now a matter of much importance. In some cases recently weeks have been spent in scraping off the oil that found its way from the condensers and feed water into marine boilers. The "Monterey" and "Peru" are two cases, costing thousands of dollars in expense, not to include loss of time, when, as Mr. Heald claims, all that was required was to put into the boilers some redwood sawdust, which by attrition cuts off the oil, and by a superior affinity absorbs it, leaving the whole as a loose granular deposit in the bottom of the boilers. This fact was discovered by an experiment at the Starr Flour Mills, near the Heald Works, where a battery of boilers badly oil-coated were perfectly cleaned in a few days' time, and no expense or detention whatever.

The London *Times*, following what has become its usual practice, has published an exhaustive review of the acreage and condition of crops in Great Britain, based upon replies to special inquiries addressed to all sections of the country. A decreased acreage is shown for wheat and barley, but oats, potatoes, beans, peas, roots, grass and hops all show increases. Speaking of the unpromising conditions, the *Times* says that if the farmers are to escape actual ruin some unforeseen and fortunate circumstances must arise.

## Rope-Power Transmission.\*

BY JAS. M. DODGE, M. AM. SOC. M. E.

Rope-power transmission is comparatively a development of recent times. Although ropes were used in isolated cases for this purpose many years ago, it may be said, so far as this country is concerned, that the last ten years have seen the adoption of rope-power transmission become more general and the system take a recognized place in the field of mechanical engineering.

There are two general systems in vogue which may be designated as the English and the American. The former employs one or more single ropes, whereas the latter uses one continuous rope and employs a tension carriage, operating on one of the turns of the rope, to insure a uniform amount of work being performed by each wrap around the wheels.

Wheels or sheaves used in connection with the rope for the purpose of transmitting power, are made with V-shaped grooves in their rims, the most commonly accepted angle being 45°. These grooves are made sufficiently deep to prevent the rope bottoming, or resting upon the bottom of the groove, the object of this being to increase the resistance to slipping and enable a moderate weight on the tension carriage to give sufficient driving force.

Sheaves used in conjunction with manila rope are made in two ways, the older method being to cast the sheaves with sufficient width of face for the number of grooves desired and to roughly core the grooves, so as to lessen the amount of iron to be removed by the turning tool in finishing them. It is necessary to cast the wheels sufficiently heavy to resist the pressure of the turning tool, in order to have the finished wheels as round as possible. It is almost impossible, however, to avoid a small amount of spring between the arms, so that upon careful measurement the wheel is found to be polygonal. This is notably the case when the cut is heavy, it being necessary, in order to obtain a good result, to take a roughing cut, which releases the skin tension of the casting and permits it to take a modified shape, due to the internal strains ever present in cast-iron wheels designed to have the outer surface removed from them by turning. Then a second cut is taken, and finally a finishing cut is made with a tool ground to the exact shape of one of the finished grooves, this last cut, which is made more to true up the inequalities of the previous work, removing but very little metal. In the foundry work connected with the manufacture of these wheels, it is seldom that a wheel having two or more grooves in it is so perfect that upon turning imperfections are not discovered. These, of course, if too numerous, render the condemnation of the casting necessary. If, however, the sandholes, or blowholes, in the turned surface of the sheave, are not too large, they are filled with babbitt metal, and the sheaves are put in use. The amount of metal turned from castings for rope sheaves is astonishingly large; for instance, in the case of a five-groove sheave of 48 inches diameter, for 1½-inch rope, the rough weight before turning was 698 pounds, and after finishing the weight was 567 pounds, showing that 131 pounds had been

turned off the original casting. This proportion would, of course, vary somewhat, dependent upon the care taken in the foundry, but at the same time it is always greater than would be supposed.

The second and newer method of manufacturing sheaves is that practiced by the link-belt companies and differs from the already described method in two very important features. In the first place, the sheaves are not turned after being cast, great care being taken in the proportioning of the hubs, arms and rims, so that the castings can be made of extreme lightness, but being devoid of internal strain are very strong. The grooves are cast on green sand cores, a three-part flask being used. By this we mean the flask has a cope and a drag, as is common in all foundry work, but between them is placed what is known as the third part or cheek piece, which holds the sand destined to form the grooves in the finished wheel. It has been found in practice that it is possible to cast sheaves in this manner that are fully as accurate as turned ones, and with an average saving in weight of 17.2 per cent., this saving in weight, of course, effecting a corresponding economy in the power required to operate a rope drive furnished with them.

The second radical difference between the link-belt sheaves and the solid turned sheaves is, that the manufacture of multiple groove sheaves, or those having more than one groove, is effected by bolting together what are known as arm sections (which are really complete sheaves of one groove) and rim sections (which are simply grooved rims cast without arms or hubs). This plan makes it possible to vary the weight and strength of multiple groove sheaves by using a greater or less number of arm sections, dependent upon the size of the rope to be used and the varying conditions of their employment. After the sheaves are "built up," as it is termed, they are bored out, and to show the trifling difference in weight between the rough and finished sheaves, I would state that a 48-inch five-groove sheave for 1½ inch rope weighs in the rough 433 pounds, and when finished 423 pounds, or 144 pounds less than the finished solid-turned sheave referred to previously.

So great is the care taken in the casting of "built-up" sheaves, that the only finishing required in the grooves is that of smoothing the casting by holding a block of emery in the groove while revolving at a speed of about 120 revolutions per minute, the finishing of each groove in this way not occupying more than three or four minutes.

An incidental advantage of the multiple groove "built-up" sheave is, that after a rope drive is erected and the necessity arises for the transmission of more power than that for which it was originally designed, additional ring section may be added to the sheaves, and by splicing in an additional piece of rope, the desired increased transmitting capacity may be secured.

It is obvious that in the use of a single rope making a number of wraps around two wheels, it is essential that the diameters of the grooves at the pitch line, which is the arc of contact of the ropes, must be uniform in all of the grooves in any one sheave; otherwise, there would be a tendency on the part of some of the wraps of the rope to travel faster than the others, which tendency must be counteracted by the slipping of the rope in some of the grooves, this, of course, resulting in a loss of power and also in the rapid wear

of the rope. So important is this feature that great care has to be taken in splicing the rope, so that the diameter at the splice will be no larger than in the body of the rope. An increased diameter at the splice would, of course, make the splice travel around a larger circle on the sheave by its not being able to take as low a position in the V shaped grooves.

It is impossible to splice a rope without impairing its strength at the splice, provided its diameter is not increased. What is ordinarily known as the short splice or the long splice, as used by sailors, will not answer at all. It is essential that a splice (for instance, in a rope 1 inch in diameter) should be from 10 feet to 12 feet long, and made with great care, so that after the splice is complete the tension to which the rope is subjected is evenly divided among the strands of the rope.

Durability of manila rope transmissions is dependent upon various conditions, the most important one probably being the quality of the rope. In order to make good rope it is necessary that the fibers employed in its manufacture should be long and of nearly uniform size. The fact that the fibers of manila have a rough interior and are of great strength in proportion to their weight, is an important factor in the strength of the rope when subjected to a tensile strain, but at the same time this very roughness becomes an element of destruction when the ropes are passing around sheaves which cause the fibers to slide upon each other, so that the internal wear of a rope becomes a most serious agent in destroying it. A worn-out rope untwisted so as to expose the strands will show a fine powder which has been chafed off the fibers. Of course, after this has been detached from the fibers it leaves them weaker than in their original condition. It is also noticeable that the fibers of manila, being composed of elongated cells, are not perfectly adapted to continued bending.

In order to counteract the destructive tendencies enumerated, it is essential that the rope should be lubricated. This is accomplished in two ways, the first being by the introduction of a lubricant in the manufacture of rope, notably, as in the case of what is known as the "stevedore," into which tallow and graphite are introduced at the time the rope is made, the effect being to increase the flexibility of the rope, increase its life, and to render it to a degree water proof, and also in the ropes of some other makes, which are laid with tallow. The second method is to coat the outside of the rope with a mixture of lampblack or graphite and grease, relying upon the working of the strands of the rope with relation to each other to work the compound through it. This latter method is practiced on the Continent, and is also being made use of in this country to a considerable extent.

Some of the largest constructors of rope transmissions in England claim that manila rope should never be used under any circumstances; that cotton is the only fiber that will give satisfactory results. I have seen samples of a rope 1½ inches in diameter which had been in constant use 10 hours a day for nearly 16 years. This was a cotton rope, known as the Lambeth, the peculiarity of its construction being that it was primarily made of cotton, but each of the four strands of the rope was covered with a number of tightly twisted yarns, forming a protecting envelope, which prevented cutting or wearing of any of

\* A lecture delivered before the Franklin Institute of Philadelphia.



the strands proper of the rope. Of course, cotton-ropes are much more expensive than manila ones, and a rope such as the Lambeth must necessarily be the most expensive of those made of cotton.

It is unquestionably true that in time cotton ropes will be more extensively used in this country, crowding out the use of manila; but it is a fact that the introduction of any radical departures in the field of mechanical engineering are only possible by offering not only a more satisfactory article than has formerly been used, but also a cheaper one. This fact has aided in the introduction of the manila rope drive, as in many cases it is not only the best means of transmitting power, but also the cheapest. Ultimately, and as users of rope drives become more familiar with their intrinsic advantages, they will be more ready to increase the original outlay and put in the best rope that can be made.

If manila rope transmissions are designed with good judgment and are properly erected, there is no possible doubt of their giving satisfactory results. The prevailing notion is, however, that as rope is flexible in all directions, rope drives can be constructed in a haphazard manner, without special care being exercised in getting the sheaves in exact alignment, and considerable criticism has been engendered by lack of attention to the important details. When borne in mind that a rope used for the transmission of power runs at a speed as high as 5000 feet per minute in many cases, and as a rule the rope is run in close proximity to the ceiling, which is the hottest part of a room, it is not surprising that the rope rapidly becomes dry, and correspondingly brittle; hence the importance of lubricating it in some way to counteract the drying tendency. It is not uncommon to find rope transmissions erected so that the sway of the rope will occasionally bring it in contact with a beam, which, of course, results in extremely rapid wear of the outside of the rope. The fact that conditions of this kind exist is sometimes hard to discover, as when the rope is at rest it may, apparently, have abundant clearance throughout the path of its travel. One case brought to my attention, in which the rope was being rapidly worn out, resulted in the discovery of the fact that in its passage through the wall of a building the rope would sway and come in contact with the edge of a corrugated iron covering of the building. On calling this condition of affairs to the attention of the parties operating the drive they seemed quite surprised that such a trifling thing as an occasional touching of the rope on the corrugated iron should in any way impair the life and usefulness of the rope.

Manila rope is usually run under a working strain equal to 3 per cent. of its ultimate breaking strain and at velocities varying from 3000 to 5000 feet per minute.

To determine the power which any rope will transmit at a given speed, it is necessary to ascertain the nature and amount of the strains to which it is subjected while running, and then to find the exact part of the total working strain which is expended in performing useful work.

Generally speaking, ropes in the "American" system are subjected to three principal strains—viz, the strain due to the power transmitted, that due to centrifugal force and that due to the tension carriage weight. Besides these three there are the minor strains, due

to the weight of the rope, the internal resistance of the rope to bending and the strains required to make the rope enter and leave the wedge-shaped grooves. With good ropes, running in well-made grooves, the minor strains do not probably absorb more than 5 per cent. of the working strain of the rope.

The idlers of rope transmissions have usually been made with semicircular grooves, permitting the ropes to rest upon the bottoms of them. It has been found better, however, in practice, to use the V shaped groove for all purposes, as it insures a revolution of the idlers at the same speed at which the rope is traveling and thus prevents the wear due to the slipping of the rope in the grooves of the wheel. It has been shown that idlers having semicircular grooves in them become highly polished, while those having V-shaped grooves do not. Thus the demonstration that the ropes slip to a certain extent in passing over idlers with the semicircular grooves is complete.

The use of the tension carriage in the "American" system of rope transmissions is twofold. In the first place, where a continuous rope is used passing over the grooves of two sheaves it is obvious that the rope must be wound spirally around the two wheels, and that unless the rope in passing off the last groove of one of the wheels is not conducted back again to the first groove of the wheel the drive would become inoperative, from the fact that all of the wraps of the rope would soon run off and leave the wheels without connection between them. In order to make this return the wheel of the tension carriage is set at an angle so as to enable it to make the proper return of the rope. Secondly, the tension carriage is weighted so as to give the proper tension to the rope and serve as a corrective agent to the trifling inequalities that may exist in the sheaves or in the rope. It is by the weighting of the tension carriage that we are enabled to tell the exact amount of strain to which we are subjecting a rope. I might add that, the tension carriage being mounted on guides, it is capable of maintaining the proper tension of the rope, even if the latter becomes considerably elongated by the strain put upon it, or is variable in its length due to atmospheric changes. This latter is especially noticeable in rope transmissions which are used wholly or in part out of doors, they being subjected to the action of rainy and dry weather.

The use of wire rope for the transmission of power I will only briefly touch upon by stating that the economic use of it seems to be confined to transmissions of great length. The sheaves employed have to be of very large diameter, otherwise the rope becomes crystallized and is of short life.

With reference to rawhide I might say that its cost has prevented its general adoption, as it is cheaper to use an increased number of strands of manila rope to accomplish the desired result, though it has one marked advantage, inasmuch as it is possible to use it on sheaves of smaller relative diameter than in cases where manila rope is employed.

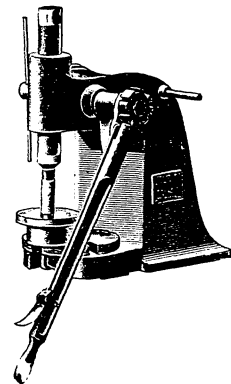
If possible, in running the rope, care should be taken to have the bends all in one direction, as a rope bent in opposite directions will wear with much greater rapidity.

The new Walnut street bridge, Philadelphia has been opened to the public. The bridge has been in course of construction since June, 1889. Its erection

was authorized and an appropriation of \$200,000 to begin the work was made on December 24, 1888. Work was not commenced on the piers, however, until September 20, 1889, when the contractors began the eastern one. On November 9 this was carried away by a freshet. Work was then begun on the western pier. Considerable difficulty was met with in constructing the piers on account of the depth of water. The four piers were finally constructed, however, at a cost of \$120,000. There are three spans over the river 123 feet long. The total cost of the structure was \$741,418 64.

### The Springfield Mandrel Press.

The Springfield, Ohio, Machine Tool Company build a mandrel press which will handle a piece 14 inches in diameter and 10 inches length of drop and take in an arbor up to 2 inches in diameter. The handle and pawl are of malleable iron and the ratchet of machine steel. The operation of the machine is exactly



*The Springfield Mandrel Press.*

similar to that of a lever drill press. The plate or disk is movable and has slots to fit arbors from 2 inches in diameter down. The machine weighs 125 pounds.

The London & Northwestern Railway Company have begun an experiment in running what they term "corridor trains," which correspond with our vestibule trains, on their line between London and Edinburgh. In constructing the cars for this new train an effort has been made to combine the conveniences of the American system with those conditions of semi privacy that are considered desirable in English railway carriages. The cars, both first-class and third class—for the second-class cars have been discontinued—are built with a corridor running along the left or platform side of the carriage, instead of having a central passageway, as is usual in American trains. The space not occupied by the corridor is divided into compartments in the usual way, each compartment affording accommodations for four passengers. The passage from one car to another is effected by an arrangement which resembles our vestibule device, except that the covering is of stout india rubber, fitted to metal frames.

A successful trial has been made on Long Island of an underground electric railway system, for which claims of advantage over the usual trolley system are made.

### The Pelton Differential Water-Wheel Governor.

The Pelton Water Wheel Company of San Francisco, Cal., are now using this governor in connection with their water wheels operating a large number of electric stations, and have obtained a regulation down to within 2 or 3 per cent. under all ordinary conditions. They lately made an application of it to one of their wheels running a saw mill where 130 horse-power is thrown on and off instantly from seven to nine times a minute. Even with this wide and sudden variation of load there is no appreciable change of speed.

The governor consists of four miter wheels, E F, geared together. The

shaft A. This shaft operates, by the connecting levers I, either deflecting nozzles or balanced valves, thereby controlling the flow of water to the wheel. The governor is also provided with an adjustable automatic stop which limits its action on the deflecting nozzle or valve; this may be set so that it will throw the governor out of gear at any desired point to provide against accident.

### High Explosives in Shells.

A few days since ten cartridges containing explosive gelatine were fired from an ordinary rifled gun at Sandy Hook with a powder charge sufficient to give a muzzle velocity of about 1400

thus exerting a cushioning effect, the extent of which is regulated by the size of the ports. The time fuse used is specially adapted for this system.

In describing the Sandy Hook trials the *New York Sun* says:

In the experiments of the past week, a 7-inch Ames wrought-iron muzzle-loading rifle was used, elevated about 15°, with a 135-pound shell and 7 pounds and 4 ounces of explosive gelatine, the propelling charge being 25 pounds of black hexagonal powder. Nine out of the ten shots fired were wholly successful, all being unfused shells, while the explosion of the tenth, which happened just beyond the muzzle of the gun, was easily accounted for. The carrier in each of the nine shots at an elevation had naturally

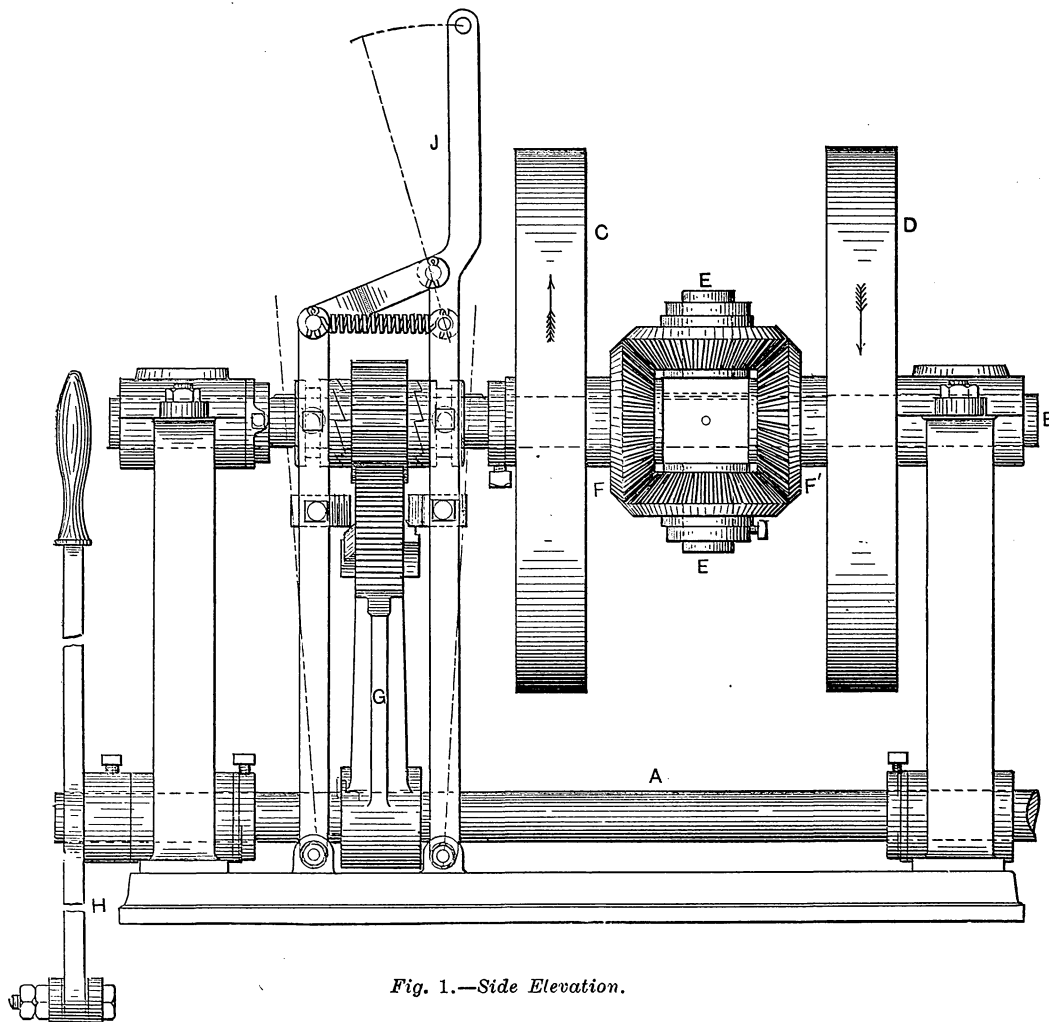


Fig. 1.—Side Elevation.

### THE PELTON DIFFERENTIAL WATER-WHEEL GOVERNOR.

wheels F F' are loose on the same shaft and are driven in opposite directions by the pulleys C D. The motion of these two gears is communicated to the gears placed between them and which turn loose on the cross head. One of the pulleys is driven by an independent motor running at a constant speed. The other pulley is connected to the water-wheel shaft either direct or by means of a counter. When the water wheel is running at its proper speed the revolutions of both governor pulleys are the same, although running in opposite directions, and the cross head on the shaft is at rest. When any variation in the speed of the water wheel occurs, either above or below the normal, it will cause the two wheels on the cross head to turn the shaft, which then communicates this motion by means of the pinion K and quadrant L to the rock

feet. The shells were constructed in accord with the principle advocated by Dr. Justin, whose experiments we have described in former issues.

He surrounds the explosive with a compressible absorbent and then packs the whole in wooden boxes inside a cylindrical case called a carrier. This carrier is shorter than the shell and of less diameter, and is fitted at top and bottom with leather disks, fastened by washer heads and rubber disks. When the gun is fired the shock breaks a wire which holds the carrier in a forward position, and while the shell at once takes up the rifling and begins to revolve very rapidly, the inertia of the carrier is overcome much more slowly. It is really forced to the rear, compressing the air behind it, and this compressed air in turn passes in front of the carrier through ports in the rear leather disks,

rested against the base of the shell, but in the tenth shot the gun had been turned from its direction seaward and aimed horizontally at a sand bank. This horizontal position had allowed the carrier to slip forward from the base of the shell, and this difference was considered to account for the premature explosion. In horizontal firing, however, the carrier can be and always should be kept in place by a pin provided for the purpose. There will be little anxiety, therefore, on account of this explosion, in regard to the next two series of tests, of which the final is expected to be from a 12-inch breech-loading mortar.

Another system of an analogous character is that of Snyder, in South Wales. In this, as described by Ensign Simpson of our navy, the projectile has the usual ogival head, a solid



base, and the rear half of its cylinder turned down to a less diameter than the caliber of the gun. Fitted over its base

When the discharge occurs the pressure of the powder gases shortens the cylinder, compresses the rubber and con-

the bore of the piece. The base cylinder drops off soon after leaving the muzzle. These projectiles can be used

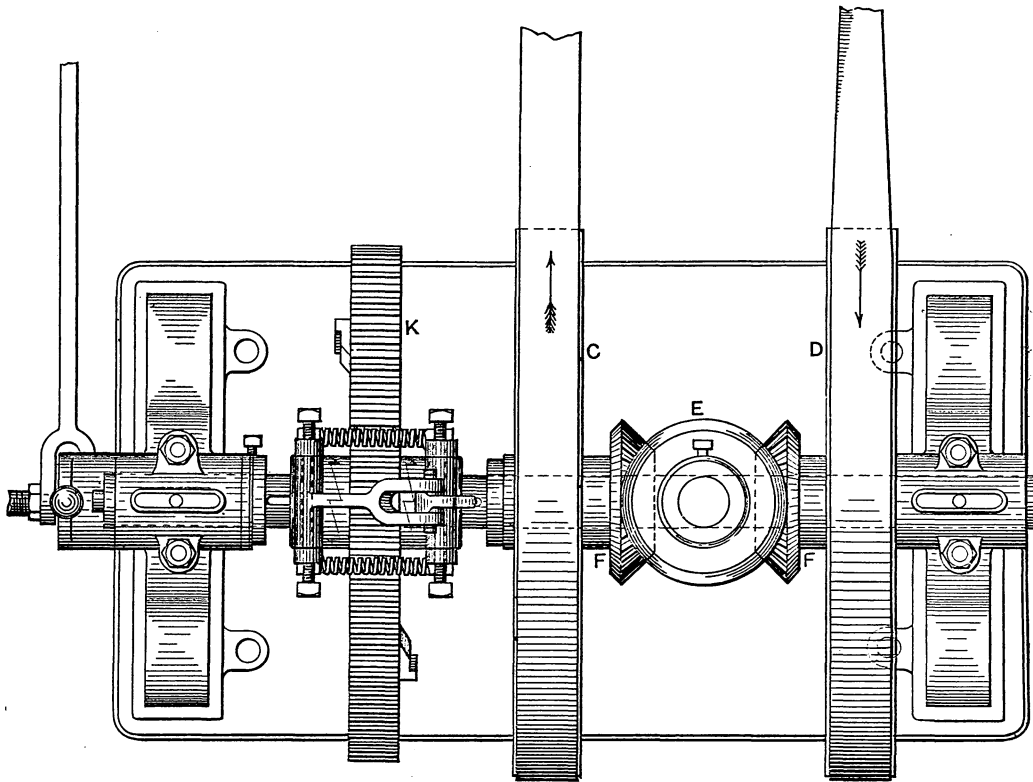


Fig. 2.—Plan.

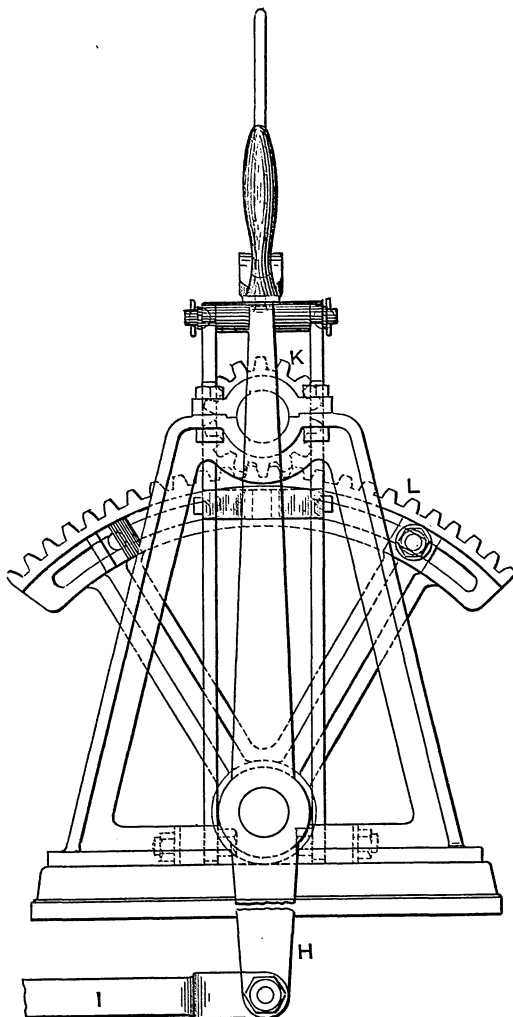


Fig. 3.—End View.

#### THE PELTON DIFFERENTIAL WATER-WHEEL GOVERNOR.

is a brass cylinder, with solid base and open head, containing a fluted rubber

tained air which produce the cushioning effect and bulges the cylinder so that it expands and takes the rifling off

either with rifled or smooth bore guns. The analogy between the purpose sought in the Snyder system and that of Dr. Justin makes it interesting to note the degree of success achieved by the former. Year before last projectiles containing 10 pounds of explosive gelatine were successfully fired from a 6-inch Armstrong and a 7-inch Blakely, but with very small velocities. A 7-inch shell, containing 12½ pounds, was fired through a ½ inch steel plate without exploding. Last year, with a 6-inch Armstrong, a charge of 7 pounds of nitro gelatine contained in shells of 97 and 99 pounds total weight, of which the rubber buffer and case weighed 21, were fired. One shot was with an initial velocity of 1284 feet per second, while the other had the high velocity of 1766 feet. Both exploded on striking a soft bank, and portions of the brass cases, showing rifling impressions, were scattered along the line of flight.

This foreign system will serve to illustrate the progress made elsewhere in the direction followed by Dr. Justin in his experiments before our Board of Ordnance and Fortification. There are two other methods of using high explosives in shells. One of them is to employ a different propulsive power, substituting compressed air for gunpowder, and this is notably safe, so that it allows practically unlimited explosive charges, such as 200 or even 500 pounds, but with short ranges of a mile or a mile and a half. The other system is that of modifying the character of the high explosive so that it cannot be burst by concussion. Examples of this sort are the French méinite, the British lyddite, the Austrian écrasite, the Swedish bellite and others, including the American emmensite, and our navy explosive produced by Professor Monroe at the Newport navy torpedo station. This, however forms a subject by itself, not related to the Justin method, which does not seek to modify either the high explosive or the propelling force, but trusts to the cushioning attachment of the shells.

## Duluth News

The Duluth Missabe & Northern has not yet completed its line into or its great docks at this city, but is handling a little ore over some temporary docks. It is hauling the product of the Mountain Iron, Lowmore, Biwabik, Minnewas, and will soon haul from the Missabe Mountain and others.

Shipments from the range to the end of the present season can be forecasted with reasonable certainty, unless something unexpected either of hardship or betterment, occurs. The Cincinnati has shipped 20,000 tons, and will probably increase this to 50,000. The Canton has shipped 8500 tons and is shut down for the present. The Hale has sold 40,000 tons. The Biwabik is under contract to pay royalty on 400,000 tons. It may ship half of that amount. The Lowmore has sold 100,000 tons. The Mountain Iron has sold 50,000 tons. The Minnewas has shipped 10,000 tons, and arrangements are being made under which both it and the Mountain Iron may work to their full capacity, probably 400,000 tons for the two, if the deal is closed favorably. The Missabe Mountain is under contract to ship 200,000 tons, and there would be no question under ordinary circumstances that it would not come up to this total. It will probably do so now. The McKinley, Franklin, Commodore, Great Western and others may make combined shipments of 50,000 tons.

There is a probability, therefore, that shipments off the Mesaba range to the close of 1892 will be nearly 700,000 tons, and a possibility that they may be more.

About July 20 the Duluth, Missabe & Northern expects to be hauling ore to its dock here. A recent train brought down to the temporary docks consisted of 40 cars of an average of 60,000 pounds each and eight empties. This probably gives it place as the easiest ore hauling road in the Lake Superior region.

Total ore shipments to date for the season over the Duluth & Iron Range road have been about 340,000 tons, and though the mining force has been reduced, shipments are going forward more rapidly than in any previous season. At the Minnesota mine, from which half this ore comes, four rock crushers are now in operation, crushing the hard ore. The largest of these crush blocks of 600 and 700 pounds with perfect ease and get through 400 tons a day. The Minnesota is the first of the hard ore companies to adopt the process of crushing its ore, and it has been found perfectly satisfactory. The Minnesota has shipped to date 156,000 tons, the Chandler 180,000 and the Zenith 4000. These are all Vermilion range mines. On the Mesaba total shipments so far have been about 100,000 tons, including 30,000 tons sent down in the winter to Chas. Himrod & Co.'s furnace at Duluth.

The present is a very interesting time on the Mesaba, from the fact that the new and startling methods of mining are being tested and put in more satisfactory shape daily, and from the further fact that new mines are being added to the shipping list almost weekly.

The Hale mine became a shipper the past week, the first test of its overhead conveying machinery loading 250 tons in seven hours direct from the natural ore body. The ore was loosened by plows and shoveled by hand into shallow boxes and conveyed by the over-

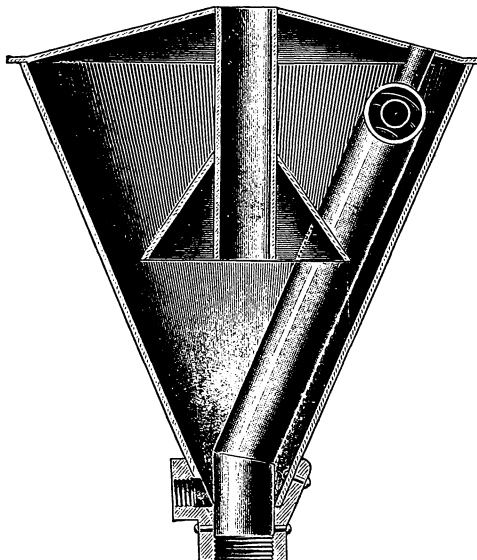
head machinery to chutes over the railway cars, into which it was dumped. It is believed that when everything is in good order 30 men, day and night shift, can mine and load 600 tons here daily. The Duluth Ore Company's tract of 40 acres in the Biwabik mine has begun shipping to the Duluth docks. It is an open pit, and is mined by steam shovel.

At the Biwabik mine, adjoining this last, 2100 tons of ore were mined and loaded on cars in 10 consecutive hours, or  $3\frac{1}{2}$  tons per minute. Black powder is used here to loosen up the ore body ahead of the shovel. Shipping from the McKinley will begin as soon as the railway reaches the mine. A large shaft is being sunk now through a good body of manganese ore. The railway spur is under way.

The Commodore & Franklin have begun shipping. The Missabe Mountain will enter the list of shippers about the time the new ore dock is completed next week.

## The Eclipse Exhaust Pipe Head.

By referring to the engraving it will be seen that the exhaust steam, as it



THE ECLIPSE EXHAUST PIPE HEAD

enters the head, is carried to the top and discharged horizontally around it, giving the steam a centrifugal motion and driving all the solid matter to the outer wall, there to run down the side and out the drip, while the light and dry steam escapes through the aperture in the central part of the top. In addition to this centrifugal motion a small pipe is run from the top outside and so connected with the exhaust pipe within the head that when the exhaust steam passes through the pipe it causes a suction in the smaller one and draws cold air into the head, which, combined with the centrifugal motion, makes a very efficient system of condensing the steam. This head is made by the New York Exhaust and Blow Pipe Company of Hartford, Conn., and 136 Liberty street, New York.

The Minister of Agriculture for Manitoba reports the wheat acreage for the current year in that province to be 1,003,000. Last year it was 875,999. The outlook of Manitoba was, it is said, never more favorable.

## THE WEEK.

Secretary of the Navy Herbert has started on a tour of inspection of all the naval stations and naval plants on the Atlantic Coast. He is using the dispatch boat Dolphin.

The report of the Harbor Commissioners of Montreal shows that the total tonnage of sea-going vessels that arrived in that port from the opening of navigation to July 1 was 350,556, of which 227 steamships furnished 343,942 tons.

A canal convention will be held in New York in the early part of September to urge the necessity of legislation for the improvement of the canals of the State.

The treaty is about concluded between the Chinese and Brazilian Governments by which the former agrees to assist emigration to the latter's country, discouraging for the present emigration elsewhere.

There were 887 business failures in the Canadian Dominion during the first half of this year, according to *Bradstreet's*. The liabilities aggregated

\$8,215,759, against \$3,880,236 of assets. As compared with the same period of 1892, this represents a falling off in number of 7 per cent. and an increase of about 14 per cent. in liabilities.

The United States Consul at Batoum, on the Black Sea, has made an interesting report on the development of the petroleum oil trade at Baku, on the Caspian Sea. The general conclusion arrived at is that, in spite of the immense supply of oil, the increasing demand may exhaust it. The daily yield of crude oil in 1885 was 38,000 barrels, and in 1892 it had increased to 110,000 barrels, while during the month of May it ran up to 137,000 barrels per day.

The French War Office has had submitted to it an electric gun alleged to be capable of discharging 25,000 projectiles in five minutes and to have a range of several miles.

Letters from Caracas to merchants in the South American trade indicate that Venezuela is at last at peace. It is stated that President Crespo has submitted to the new parliament a procla-

mation pardoning all those who fought against him. The act has been approved and all natives of the country can now safely return.

The elevators and storehouses of New York are congested with wheat awaiting transportation abroad. The low cargo rates prevailing have led to few offerings by the steamship companies, and as a result every available storage building has been taxed to its utmost by the influx of grain from the West and even a great number of canal boats have been unable to unload their cargoes.

The total receipts of the New York post office for the fiscal year ending June 30 were \$7,369,260.52, an increase over the preceding year of nearly \$600,000.

The Mont Blanc Observatory is approaching completion. It occupies an altitude of 15,781 feet above the level of the Mediterranean Sea, and rests on an ice foundation. The total cost of this extraordinary undertaking will approximate \$60,000.

Mayor Gilroy has declined to advance the funds necessary to enable the nautical school ship *St. Mary's* to take its usual summer cruise. Officials of American steamship lines deplore the seeming lack of patriotism, and say that the cadets of the *St. Mary's* are in demand on account of their superior intelligence and knowledge of seamanship and navigation.

Experiments are shortly to be carried out by the Navy Department to determine the best colors to paint war ships in order to make them as difficult as possible to sight at sea.

Much damage has been done and much suffering caused by the recent droughts in Germany. The peasantry have lost most of their young crop and the scarcity of fodder is becoming a national calamity. Cereals have been purchased with State funds to aid peasants and feed their cattle.

The Brazilian Department of Agriculture deplores the rapid destruction of what were at one time looked upon as inexhaustible forests of india rubber trees. A recent report of the Department suggests as a remedy that plantations for the cultivation of the tree be established, and shows by statistics that large profits would accrue to the planter.

Probably few people realize the large amount of work which is regularly carried on at the Brooklyn Navy Yard. Thus in the construction department alone 740 men are at present employed in repairing the war ships.

The removal of the duty on barley, corn and oats by the Senate of France, on account of long droughts in that country, will, it is expected, have a tendency to improve the market in this country and increase the export demand of these articles.

It is expected that the improvements which the Baltimore & Ohio Railroad is making in West Virginia will develop large coal fields in that State.

A new dredge, said to be the largest in the world, has been put into operation on the Mersey, at Liverpool. It is 320 feet in length, and it is calculated that it will raise 24,000 tons of matter daily from the bar at the mouth of the river.

Ever since the year 1890 England's trade with foreign countries has been

uniformly decreasing. It fell from £749,000,000 in that year to £744,000,000 in 1891, and to £713,000,000 in 1892, showing a falling off of £36,000,000 in two years. The total foreign trade for the first five months of the present year shows a serious decline as compared with the same period in 1892, so that it would seem that this year is also to witness a decline in England's foreign trade.

A novel case has been taken to court by the people of Ironwood, Mich. The engineer in charge of the water works permitted dead fish, birds and other matter to putrefy at the bottom of the stand pipe through which the water for the city is pumped. An epidemic of typhoid fever resulted. The city now proposes to ascertain the legal responsibility of the engineer for the consequences of his neglect of duty.

Rollin H. Wilbur, son of President Wilbur of the Lehigh Valley Railroad and superintendent of the Eastern Division of the Reading system, recently handled the throttle on what is stated to be the quickest run ever made between Bethlehem and Mauch Chunk. The train left the former place half an hour late and arrived at Mauch Chunk on time.

A dispatch from St. Paul to the New York *Evening Post* says that C. A. Pillsbury and other leading millers estimate the wheat crop of the Northwest at from 68,000,000 to 70,000,000 bushels, which would be a very light crop. This is contingent upon seasonable rainfalls until after harvest time. The estimate is made on the following basis: Under the most favorable circumstances South Dakota is not expected to raise more than one half of an average wheat crop; Minnesota two-thirds and North Dakota three-fourths. An average crop for the three States is estimated at 105,000,000 bushels, which would bring the figures up to 68,000,000. It is figured this falling off of the output will increase the price to such an extent that the farmers will receive as much money as they would have gotten for a full crop.

A big jamb of logs at Carratunk Falls, Maine, was started on the 11th by the aid of a locomotive which was attached by a 2-inch wire cable to the last key log. This jamb was the largest ever hung up at the falls; it contained 35,000,000 feet, and cost \$12,000 to move it.

The Bureau of American Republics is informed that the Chilean Congress has passed the act for reorganizing the currency, and that, having received the sanction of the Council of State, the act has now become law. The act provides that the paper money shall be redeemed from December 31, 1899, in the new money to be coined under the act of November 26, 1892, at the equivalent value of a silver dollar of 25 grams in weight and nine-tenths fine. The paper money may, however, be redeemed from July 1, 1896, in the money to be coined under the act of November 26, 1892, or, in other words, at the rate of 24 pence per dollar. The holders of paper money, therefore, will have the option of redeeming their notes at 24 pence, or in the silver dollar of 25 grams and nine-tenths fine. The paper money will cease to be legal tender after July 1, 1896. To prepare for the new coinage provided for by the act of November 26, 1892, the silver acquired by the State under the act of March 14, 1877, the gold received in the payment of duty

and storage, and up to £1,500,000 of the proceeds of the trade of Government nitrate properties, are to be maintained on deposit in the Treasury. From December 31, 1895, until July 1, 1896, the banks must maintain in gold specie or bullion a reserve fund of 20 per cent. of their authorized issue. The paper money redeemed by the State is to be burned. Half of the 50 per cent. of the duties payable in gold under the act of November 26, 1892, in the years 1894 and 1895, shall be paid in the equivalent value of paper money, and the portion of import duties and storage required to be paid in gold may be paid in good bills on London up to December 31, 1894. "Whatever diversity of opinion may exist with respect to the new act," says the *Chilian Times*, "it must be admitted that it is an improvement on the one that preceded it. In one respect, however, both acts are alike. They aim in the first line at the redemption of the paper money and the resumption of specie payments. They differ only in the means of accomplishing these ends." The *Chilian Times* adds that the Government and the country are too far committed to this policy for it to be possible for them to turn back.

The Trunk Line Association has reduced the fare from New York to Chicago to the price of one limited fare for the round trip. The ticket is good for ten days. Two excursions will be run on Mondays, Tuesdays, Wednesdays and Saturdays of each week, to be alternated by the several lines. On the Pennsylvania and Central the fare will be about \$20 for the round trip. On the West Shore and Erie it will be about \$18, and on the Ontario & Western, \$17.

Two steamers for service between Buffalo and Duluth are now being built by the Globe Iron Works of Cleveland. These ships will cost \$600,000, have quadruple expansion engines, 25, 36, 51½ and 74 inches diameter, of 7000 horse-power; all valves of the piston type. The length is 380 feet, beam 44 feet, depth 34 feet. They will be provided with 28 boilers of the Belleville type.

An extraordinary series of frauds has been disclosed in connection with the building of two iron bridges across the Lachine Canal at Montreal, Canada. The stone was hauled by teams owned by members of the Provincial Legislature for 20 miles, from the quarry to the works, at the rate of only one load a day, although a railway ran into the mouth of the quarry. Thus the stone which should have cost \$5 a cubic yard actually cost \$59.

A peculiar fate has befallen a rainmaker in Kansas. He claimed to have caused a cloud-burst which came without warning. A farmer, whose crops were injured, now attempts to make the rainmaker pay for the damage his storm did. Evidently the rain doctor's lot is a hard one, as well in Kansas as in the wilds of Africa.

Russia will enforce the maximum duty of 20 per cent. on all imports from countries which have no commercial treaties with the empire of the Czar.

Dr. Haffkine, a German physician, has inoculated numbers of European residents in India for cholera, including British officials and the officers and men of several regiments. His system has been received with great favor by the rulers of several native States, who are about to adopt it in their dominions.

# The Iron Age

New York, Thursday, July 20, 1893.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.  
CHAS. KIRCHHOFF, - - EDITOR.  
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.  
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.  
JOHN S. KING, - - - BUSINESS MANAGER.

## Silver and Lead

The suggestion has been made that altogether a different phase would be put on the silver question, if in the near future there should be any material change in the duty on lead in ores or on pig. There is no means of estimating the effect of such a measure. We have no recent statistics giving the quantity of silver produced by amalgamation or by leaching, nor are any figures available to ascertain how large a quantity of dry silver ore is treated by the smelters. Even the exact definition, statistically, of what constitutes a lead ore and what is a dry ore would be a troublesome matter.

Probably the fairest way would be to draw the line at a figure somewhat below the average smelting mixture of the lead smelters of the Rocky Mountains. According to the census report for the year 1889 the following quantities of ore were smelted, producing the amounts of base bullion given :

States.	Ore Smelted. Net tons.	Lead Bullion produced.
		Net tons.
Colorado.....	602,014	67,367
Montana.....	71,403	16,335
Utah.....	66,797	12,998
Texas and New Mexico.	79,168	13,733
Totals.....	819,382	110,843

In addition to this certain quantities were smelted at Missouri River points and at scattered works. The average smelting mixture in that year yielded 13.5 per cent. of lead. It would probably be fair, therefore, to call any ore carrying less than 10 per cent. of lead a dry ore.

A reduction in the duty of lead would unquestionably curtail the production of domestic lead ores in the Rocky Mountain States and Territories. It would directly cut off the accompanying silver and would further very materially reduce the production of the white metal by very seriously affecting the market for dry ores. As a natural result advancing prices for silver would follow.

It is this chain of reasoning which has suggested to some, who are anxious to see silver improve, the idea of urging a total repeal of, or at least a sharp reduction in, the duties on lead ore and pig lead. There can be no doubt that such a course would be particularly welcome to the lead and silver mines of Mexico and Canada. It is a grave question whether it would not mean merely a transfer of the silver mining industry to the two countries named, and whether the stimulus given to production there would not very largely counterbalance the beneficial effect aimed at in the price of silver, by increased supplies from other quarters.

## The Lake Superior Ore Trade.

The collapse of the Lake Superior iron ore trade is one of the most remarkable occurrences in our industrial history. The full force of the depression in the iron trade appears to be exerted on the hapless people who have their money invested in mines or in transportation interests. In previous periods of depression the mining interests sympathized to some extent and there were a few mines that perhaps closed operations completely until times improved. Now, however, there is a general cessation of activity. The most productive mines, and those most easily worked, have suspended operations either wholly or partially, as well as those less cheaply operated. The story shows one of its phases in the following press dispatch :

DULUTH, Minn., July 12.

Lake freights from this section are still dropping and have reached the lowest prices known. Wheat is being chartered from Duluth to Buffalo at 1¼ cents a bushel, or equivalent to 46 cents a ton on iron ore. Ore has actually been chartered from here at 60 cents to Lake Erie, which nets the vessel only 44 cents. Only the very largest vessels can come out even on these freights, either for ore or wheat, and smaller vessels are laid up. Ore charters are made from Escanaba to Lake Erie at 45 cents. Coal freights from Buffalo to Duluth are 30 to 40 cents a ton, or about the usual rate.

There appears to be very strong ground for believing that the shipments of Lake Superior ore this year will hardly surpass those of 1888, when only 5,000,000 tons were forwarded for consumption. This will be a frightful reduction in shipments as compared with intervening years. The shipments of 1890 and 1892 exceeded 9,000,000 tons in each case. A shrinkage to but little over half is vastly more than a depression. It is truly a collapse, and means ruin to direct as well as dependent interests. Within the past week the property of a great syndicate operating a dozen or more mines has been attached by a railroad company for freight bills. Other concerns are known to be in need of ready money and daily engaged in the pleasant occupation of staving off creditors. Not only are owners of mines in sore straits, but the thousands of workmen and others depending on iron mining are feeling the cruel pinch of the hard times. The once prosperous mining towns of Michigan and Wisconsin are suffering terribly now.

One cause assigned by mining companies for the general suspension of work is the inability to discount consumers' paper. Iron ore is usually sold on monthly payments, notes being given for the amount due each month for 12 months. In ordinary times such paper can easily be discounted and mining companies can go ahead with their business as easily as if the transactions were on a cash basis. Now, however, accommodations of this character cannot be had. Consumers cannot pay for their ore in cash, mining companies do not have the enormous cash resources to carry their

consumers' accounts, and the result is that mining operations have to be suspended even with some demand for ore. The present acuteness of the trouble is due solely to the financial situation and to nothing else.

This fact permits the indulgence of some hope that the mining interests of Lake Superior may revive at an early day. The restoration of confidence in our national currency will cause the return of withdrawn deposits to the banks, and discounts will then be made as freely as before. If this happens much before the close of navigation there will be a decided increase in shipments, and the wheels of local commerce will again move. Speed the day.

## Taking Foolish Risks.

The cold storage warehouse at the World's Fair was burned last week, and nearly two score lives were lost merely because a metal thimble had not been put on the smoke stack to prevent it from coming in direct contact with wood. Here was \$250,000 worth of property constantly in jeopardy because none of the managers of the warehouse took enough interest in the protection of the property from fire to look after the due completion of the smoke stack. The architect says it was not his fault, because he merely made the plans. The owners say they thought it would do as it was. And yet insurance companies had refused to write policies on the building, because their agents condemned it as too great a risk. One of them said : "It is not even a risk, because it is sure to burn down some time." Under such circumstances it seems almost incredible that owners would themselves take risks refused by insurance companies. The owners were willing to risk all they were worth that a spark would not some time set fire to the surrounding wood work. And yet are not such risks being taken continually by manufacturers and others?

They may not be quite so glaring as this seems to have been. We hope that not another case can be found in which sparks are permitted to play directly against wood work. But there are other risks, dangerous to persons and property, which manufacturers are too apt to take. After a serious mishap, when the cause is laid bare, every one will wonder how it could have been overlooked. Yet he himself may be overlooking some very serious risk he is taking at that time. An excess of caution is better than foolish confidence, which is often nothing more than insane recklessness.

A correspondent states a rather novel experience, which, he says, is proving quite a serious matter in some lines of trade. Large manufacturing establishments owe him for supplies. The accounts are overdue, yet he can neither collect the money nor obtain notes, which he might be able to have discounted. He is simply told that he

cannot be paid just now and he will have to wait. They never have given any paper out and do not propose to begin now. This is not a solitary case, but has plenty of company. It is a suspension of payments brought about by the scarcity of money and the inability to obtain assistance from banks. These large concerns know they are perfectly solvent, but, as they do not have ready money, they cannot pay their bills and they will not put out evidences of indebtedness which must be promptly met when due. It is a bad condition of affairs, but what can be done to make it better?

### The German Iron Industry and the State.

A formal petition has been presented by the Association of German Iron and Steel manufacturers to the authorities of their own country asking that foreign bids on railroad material be rejected and that the work be given exclusively to German firms, or that by way of reprisal the conditions be made such as to regulate the competition of foreign industries. This brief prayer is accompanied by a lengthy document, setting forth the condition of the German iron industry and citing numerous cases in which the selling of German goods in foreign countries is hampered by measures taken to divert the work to local manufacturers.

Germany has made tremendous strides during the past few years, in comparison with the development of other nations in Europe. The production and the percentage of export, shown in the following table, well illustrate this fact:

Year.	Pig Iron.		Iron and Steel Goods.	
	Production. Metric tons.	Per cent. exported.	Production. Metric tons.	Per cent. exported.
1885..	3,687,434	5.8	3,421,077	22.6
1886..	3,489,466	7.2	3,324,257	26.0
1887..	3,954,413	7.9	3,508,424	24.2
1888..	4,337,121	4.5	4,166,945	20.6
1889..	4,524,759	4.7	4,636,945	17.0
1890..	4,658,451	3.9	4,851,359	16.0
1891..	4,524,816	4.7	4,757,768	19.9
1892..	4,934,791	3.2	.....	....

The export trade is, therefore, a very important one, so far as iron and steel manufactures are concerned. Two of the leading customers of Germany have been slipping away—the United States and Russia. In reference to the former the report says: "The United States not only cover their own requirements, with the exception of some specialties, but the indications of overproduction are appearing, which, as may be surely foreseen, must very soon seek relief in the world's markets. We Americans are not likely to be as sanguine on that point after a comparison of prices ruling in Europe and in this country. In some lines a moderate amount of business has been secured by using the drawback system, and in some instances the reciprocity treaties have done some good. But as compared with the volume of business done at home, in ordinary times, the export trade is pitifully small and is hardly likely to become a factor for

some years to come. The efforts of our manufacturers will probably be still directed for some time to come to establishing and maintaining absolutely complete control of our own markets."

The German ironmasters present some interesting figures concerning the decline of their export trade to this country, some of which we have copied in the following table, in which the metric ton, about equivalent to our gross ton, is the unit:

German Exports to United States.

	1880.	1888.	1890.	1891.
Pig iron.....	12,241	9,625	21,010	16,407
Fish plates and ties.....	51	63	774	626
Steel rails.....	41,629	3,112	1,965	233
Tires and plow-share iron.....	269	2,592	58	.....
Bars and scrapes..	9,263	27,354	1,814	12,660
Billets and ingots..	1,308	3,119	6,262	1,741
Plates.....	218	1,667	1,415	1,696
Wire.....	13,336	37,798	12,870	10,779
Anvils and vices..	32	35	150	121
Anchor and chains.....	130	24	16	.....
Car springs, axles, tires, buffers, &c.	1,297	3,120	3,744	2,190
Coarse iron goods..	710	3,720	2,967	2,104
Fine iron goods...	413	364	1,357	717
Machines and parts of machinery.....	383	1,405	921	1,603

These quantities are certainly not formidable, and, excluding the boom year 1880, cannot have contributed very materially to making the German iron and steel trades active, nor can the total loss of the business be a very serious matter.

There is much more force in the argument when it takes up the loss of business with Russia, and some backing is given to the appeal to the State authorities by quotations proving a disposition in other European countries to exclude German and other foreign bidders. The petitioners present a table showing that contracts for rails amounting to 42,000 tons and for ties aggregating 20,000 tons have been given by the German State railways to foreign makers during the period from September 30, 1886, to April 6, 1893. Considering the fact that the State railroads get freight money for hauling all the raw material and all the finished goods for the iron and steel works, the demand does not seem unreasonable that its requirements for track equipment and rolling stock be given to home works. We judge, however, that it is a question of price, and that on that point the German steel works have played some lively pranks during the last few years.

To an American unaccustomed to dealing with a paternal government the most convincing part of the argument is that which deals with the burdens imposed upon German industry by the socialistic legislation of the last decade, embracing as it does compulsory insurance against sickness, accidents and the pensioning of workmen. For the year 1892 the total receipts for these different funds are figured at 308,200,000 marks, or, roughly, \$77,000,000. At the beginning of the year the accumulated fund of the insurance against sickness aggregated \$27,500,000, that of the accident insurance \$25,000,000 and that for pensioning \$41,000,000. Some of them must

still, under the law, go on accumulating. The accident fund will be added to until 1897. The pensioning fund goes on tying up capital for 10 years more, at the end of which time it is to reach \$250,000,000. The German iron industry must bear its share of this annual burden and must contribute heavily to the locking up of capital in the reserve funds. It cannot be denied that this constitutes a heavy handicap and gives considerable support to what might otherwise easily appear to be somewhat unreasonable demands.

### The Amalgamated Association and Its Methods.

In a recent communication published by the *Pittsburgh Times*, from D. B. Oliver of the Oliver Iron & Steel Company of Pittsburgh, Pa., some of the methods pursued by the Amalgamated Association in its dealing with iron and steel manufacturers are set forth. The communication of Mr. Oliver in full is as follows:

*To the Editor of the Times*—SIR: It is more than probable that the conferences now on will be the last ones ever held between the manufacturers of Pittsburgh and the Amalgamated Association. Only seven of our manufacturers could be induced to meet the workmen's committee, all the rest being either non-union or on the way toward becoming so, and it interests us all to inquire as to what has brought about this condition of things.

The average manufacturer has no objection to the Amalgamated Association, as long as he feels that he is being fairly treated by it; but it is the knowledge on his part that he has been unfairly treated, and his business injured by it, that has compelled so many of them to operate their establishments outside of it, and justified their workmen in following them.

One serious cause of complaint consists of discrimination in prices against us, whereby the manufacturer here is heavily handicapped. For years the amalgamated price for boiling, east of the mountains, was \$4 per ton, while in Pittsburgh the price was \$5.50 a ton, a difference of 37 per cent. Of late the price in the East has been \$3.50 per ton, a difference against us of 57 per cent. This discrimination has enabled Eastern manufacturers to supply Pittsburgh users of iron with thousands of tons of iron during the last two years at prices that it was impossible for us to meet without loss, and caused our furnaces and our workmen to remain idle. When the Amalgamated finally found itself unable to raise the prices east of the mountains, fair dealing would demand that such a concession be made here as would at least protect our home market for us, and protect us against the partial closing of our mills. This concession was invariably refused until this year, when they proposed a reduction of only 50 cents per ton.

In 1889 the Amalgamated officials made a special scale of prices with one of our largest home manufacturing concerns, enormously lower than those made for any other concern hereabouts, and they resolutely required the observance of the old scale on the part of all other manufacturers who would not or did not fight with them. The effect



of this special scale was to enable this favored establishment for some time to practically control the trade in the several lines covered by this special scale, and to cause other establishments not thus favored to work short time and to consign their plant and their men to enforced idleness. In justification of this action, they said it was caused by special mechanical appliances, whereby the output in this favored establishment was largely increased. Investigation, however, showed that the increase in output was by no means in keeping with the decrease they made in price. To illustrate: On one of the roll trains in this favored establishment the price for rolling, fixed by this special scale, was 13 cents per ton, and the train had an average output of 80 tons per turn. On a mill not thus favored and making the same kind of work the regular scale price for rolling was 72 cents per ton, with an average output of 30 tons per turn, the labor of rolling in both cases being about the same.

I submit, therefore, that when the Amalgamated found itself compelled to make this special scale to this favored establishment, fair dealing demanded that a proportionate price, based on the labor required and the output, be made to all other establishments. This price on the mill referred to would have been about 34 cents per ton, instead of which the full 72 cents were exacted, with the result that the mill soon fell into broken time. I cite this as but one of many similar cases that I might quote. I may add that as a result of this course of action on the part of the Amalgamated, out of about 17 mills in the county engaged on this line of work only four are now Amalgamated mills, and 13 with the men working them are operated outside the Amalgamated Association and at prices privately arranged.

Another serious objection is the ever-recurring yearly squabble on the wages scales. The workmen's committee usually consists of from 15 to 25 of the workmen, brought from various points, many of whom are very ill-informed on trade matters, and who are under pay, and some of whom guard their own particular interests exclusively, and to most of them the whole affair is in the nature of a picnic, to be prolonged as much as possible.

It very seldom takes on the character of an impartial investigation with a view to arrive at conclusions equitable to both sides, but assumes more the nature of a dogged and stubborn struggle to carry out terms and arrangements previously arranged on among themselves; meanwhile the entire business of the employers is stopped, and the business of the entire community seriously interfered with. Mills at a distance are allowed to run subject to the settlement at Pittsburgh, and thus unfairly allowed to prey on Pittsburgh trade, and we have to stand the brunt of all of it. The entire non-union portion of the trade is free from this ruinous practice, and I believe that this freedom constitutes one of the strongest inducements to manufacturers to make the mills non-union. I believe, further, that many of the more thoughtful of the workmen are tired of it.

The experience of late years has had the effect of convincing many of the manufacturers that the Amalgamated Association, as operated of late, has not and will not deal justly with them unless it is compelled to do so; that, no matter what the conditions of trade require, no adequate concession or relief will be afforded unless as a result of a strike. This ought not to be so. The

Amalgamated officials ought to be leaders, and not followers. The Association ought to utilize the experience and the knowledge of the conditions of the trade which its salaried officers, from their position and opportunities, necessarily acquire, for the good of the men and for the good of the business of their employers. Instead, however, of doing this it pursues a policy, if it may be called a policy, of most unfair and unjust discrimination, which is ruinous to the business of the mass of the employers, enforcing idleness and broken time on the workmen, alienating interests which always have been friendly and which wish to continue friendly, a course of action which, if persisted in, will surely end in the disintegration and ruin of their association.

DAVID B. OLIVER.

It is only fair to state that many of the charges made by Mr. Oliver have been emphatically denied by M. M. Garland, president of the Amalgamated Association. Mr. Garland states that the ground covered in the communication of Mr. Oliver has been repeatedly gone over in conferences with manufacturers, and the charges made have been satisfactorily explained.

#### Plumbago Foundry Facings.

The Joseph Dixon Crucible Company of Jersey City, N. J., have issued the following interesting statement: In considering the subject of foundry facings the art of molding may be divided into three classes—viz.: 1. Green sand. 2. Dry sand or loam. 3. Flat or "print-back" molding. Such a division answers to the three general methods in which facings are applied.

But in different shops different conditions exist and different methods are followed, and because of their differences we are often unable, through our ignorance of them, to correctly fill orders that come to us.

For your better information we give a short description of the three methods of mold-making and using of facings.

1. In green sand molding, the sand (slight damp, just enough so to pack and retain the form of the pattern) is rammed around the pattern, the pattern is removed and the facing is applied. This is done either by shaking the facing through a bag, or by being put on with a brush, to insure its even distribution over the surface of the mold. It is then rubbed by the hand or by the use of a "sleeking" tool. This insures the adherence of the facing to the moist sand so that it will not run or become loosened, as the molten iron runs across it.

This method of making molds is used more than any of the others and is used in all general machine shop work, except where the castings are very heavy.

2. The dry sand or loam molding is employed. In this branch of work, dry sand—that is, sand that has previously been used in the same kind of work, is mixed with fresh loam, and after the molds are made they are baked by placing them in an oven if small, or by building a fire inside the mold if they are large. Such a mold is hard and firm and the surfaces are porous in texture and afford a fine support for the facing, which is applied in the form of a wash or paste. The usual sleeking follows, to insure perfectly smooth surfaces on the casting. This method is

followed where the work is heavy—such as engine and planer beds, engine cylinders, large gear wheels, &c.

3. Flat or "print-back" molding is the method employed where the articles to be cast are light and ornamental in character—such as stove plate, grate fronts, castings and iron fences, &c. In this case the molds are made the same as in green-sand molding, and the facing is applied through a shake bag, but instead of smoothing the facing by the hand or tool, the pattern itself is pressed back into the mold, and in this way the facing is made to stick to the sand and also to correspond exactly to the surface of the pattern. Whatever loose facing may be left in the mold is blown out by the bellows and the mold is finished.

With this information in your mind, you are expected to put yourself in possession of such other information as will enable you to answer the following questions when sending in an order for facings:

1. What articles does the molder make?

2. (a) Which of the three methods are followed?

(b) If more than one method is used, for which method is the particular facing of this order to be used?

3. (a) If for green sand molding, is the facing to be applied through a shake bag or by a brush?

(b) Is the facing "sleeked" by the hand or by a tool?

(c) Are the castings heavy or light (that is, is the total surface of the casting small or great as compared with the weight)? This is important. A block 1 foot each way weighs the same as a plate 4 feet long by 3 feet wide by 1 inch thick. But the block has but 6 square feet of facing surface, while the plate has more than 25 feet. You will see at once how differently the first casting would effect a facing.

(d) Does the foundryman consider that he uses his sand wet, dry or medium? Be sharp on this point, so that you may be able to judge for yourself. One man's "dry" sand may be another man's "wet" sand. By feeling of the sand in every shop you go into you will soon be able to judge on this point better than any molder in any shop.

(e) Do they have any trouble from the facing running before the iron?

4. If for dry sand loam molding, is any charcoal added to the facing by the molder himself?

5. If for flat molding, is charcoal used in connection with the facing, and if so, is it dusted on separately or mixed with the facing before using?

6. Are there any troubles in the conditions or practices of the shop that might bother the facing, and have there been any difficulties experienced in the use of his molding sand.

Quite an ambitious concern, the American Coal & Steel Company, capital stock \$32,000,000, were granted a license to incorporate by the Secretary of State at Springfield, Ill., last week. The incorporators are Jacob Lazarus, Hampden Kelsey and H. A. Cors. The latter is manager of the International Mortgage syndicate. The other incorporators occupy offices adjacent to his. "We happened to be near by, Mr. Cors asked us to sign the papers," said Mr. Lazarus. "I know little of the objects of the company. The papers set forth that the concern own a lot of land in the South, which contains coal and iron. The purpose is to develop it."



## The Scranton Case.

We have received the full text of the decision rendered by Judge Acheson, Judge Buffington concurring, in the case of *Louis H. Bristol vs. William Walker Scranton and Walter Scranton* before the Circuit Court of the United States for the Western District of Pennsylvania. The review of the case and the comments upon it by Judge Acheson are much stronger than has been apparent from the brief announcements thus far published.

Contemporaneously with the execution of the preliminary agreement for the consolidation between the Lackawanna and Scranton companies, a written agreement, bearing date January 9, 1891, between the Lackawanna Iron & Coal Company, party of the first part, and William Walker Scranton and Walter Scranton, parties of the second part, was executed, whereby it was agreed between these parties:

"1. That upon the complete execution of said contract between the Lackawanna Iron & Coal Company and the Scranton Steel Company, the party of the first part, will assign, transfer and deliver to the parties of the second part \$350,000 of the mortgage bonds of the Lackawanna Iron & Steel Company described and provided for in said contract.

"2. And in consideration thereof the said parties of the second part agree that they will not, nor will either of them, engage, directly or indirectly, in the manufacture of steel in any new competing works not now existing in any of the Northern States of the United States, including Maryland, Virginia and West Virginia, for the term of ten years from and after the complete execution of said contract; that they will at once procure and deliver to said Iron Company the assent of the Scranton Gas and Water Company to the assignment of the contracts with that company specified and described in said contract between the Lackawanna Iron & Coal Company and the Scranton Steel Company."

It was claimed by the plaintiffs that the stockholders of the Scranton Steel Company were entitled to the money thus paid. Judge Acheson says, after a review of the facts and the testimony:

"Looking at the whole transaction in the light of all the evidence, our conclusion is that it was free from actual fraud. The contract between the Lackawanna Iron & Coal Company and the Scrantons, we are satisfied, was conceived, made and carried out in perfect good faith.

"But we think the rule is not applicable to the present case. In no proper sense were the bonds in controversy a profit made out of the agency or fiduciary relationship which here existed. They were not a gratuity; nor were they paid to the Scrantons because of their fiduciary position. They were paid and received upon a valuable consideration moving wholly from the Scrantons individually. The Scranton Steel Company had no claim to the future services of the Scrantons. Their time belonged to themselves. The bonds were not part of the consideration to which the Scranton Steel Company were entitled. The two contracts were distinct in parties, subject matter and consideration. The bonds were not paid to the Scrantons to influence their action adversely to their principal; neither were the Scranton Steel Company injured by the individual contract. In very truth, the company were profited thereby, for

without the personal covenant consolidation would not have been affected at all."

## PERSONAL.

Herr Haarmann, who is famous in Germany as the designer of metallic permanent way, is now in this country. It is he who has exhibited in Chicago the series in the Transportation Building illustrating the development of permanent way.

Killingworth W. Hedges, an English engineer, who is the inventor of car-boid bearings, and who is a contributor to *Industries-Iron*, has sailed for home.

H. Boos, engineer of the Westphaelische Union, one of the large German works, is in this country. He has been studying, among other matters, American wire nail machinery.

The Secretary of the Navy has accepted the resignation of Commodore Wilson as Chief Constructor of the Navy, and appointed Naval Constructor Philip Hichborn to succeed him. Commodore Wilson resigned on account of ill health. He prepared the plans of the first steel ship of the new navy, the *Chicago*, as well as those of nearly all of the others. Captain Hichborn, who succeeds to the position, was born in Massachusetts and was appointed to the navy from California in 1869, and since 1881 has been prominently associated with all matters affecting the designing and construction of the new naval vessels.

Frederick B. Miles of Bement, Miles & Co., Philadelphia, met with a terrible disaster at his summer cottage at Bay Head, N. J. His wife, with two children and three servants, were poisoned by impure food while he was absent in Philadelphia. Mrs. Miles died on Sunday morning.

E. S. Moffat, president of the Lackawanna Steel & Iron Company, has gone to Europe for his health.

Professor Hermann Wedding of Berlin, who has been appointed one of the judges at the World's Fair, has accepted, in spite of the sacrifices and inconveniences which such fatiguing work imposes upon a man advanced in years. Dr. Wedding sailed on the "*Havel*" on the 18th inst.

James A. Burden of the Burden Iron Works, Troy, N. Y., has left on a private car with his family for an extended trip through Yellowstone Park and westward to the Pacific.

Edwin M. Fox, the European representative of the Harvey Steel Company, who was in this country for a short time, has returned to his post.

The American Society of Civil Engineers has issued a reference map of the United States for the convenience of visiting foreign engineers. It contains an extensive list of public works and manufactories which are open to their inspection, the map and lists having been prepared by the Committee of Information and Courtesy, of which Edward P. North, Leffert L. Buck and Foster Crowell are the members.

A splendid system of electric buoys has been inaugurated by the Light-house Board for lighting the lake front between Chicago harbor and the World's Fair grounds. This system of lighting might be advantageously introduced in other inland waterways.

## A Scale Disagreement.

Another meeting, and what promises to be the final one, of the Conference Committees representing the manufacturers and the Amalgamated Association was held in the Ferguson Building, Pittsburgh, on Monday the 17th inst. The conference convened about 2 p.m. and adjourned at 6 p.m. with no date set for another meeting. No agreement was reached, the Amalgamated Association absolutely refusing to grant certain reductions in the finishing departments asked by the manufacturers. On the part of the manufacturers the charge was made that certain firms were being favored by the Amalgamated Association in the granting of special scales to them, thus placing other concerns at considerable disadvantage. It is said that the heaviest reductions were granted in the scale governing hoop and cotton-tie mills, but they effect only two or three mills. In the bar and guide mills practically the old rates were demanded, although the manufacturers presented good reasons why material reductions were imperative. Exhaustive arguments were made on both sides, the manufacturers insisting on their original demands, while the Amalgamated Association refused to make any further concessions over those made in the scale as signed by the J. Painter & Sons Company. It being apparent that no agreement could be reached an adjournment was had. After the meeting the following statement was made by a prominent Pittsburgh manufacturer who had been present at all the conferences held between the two committees:

"The conference has adjourned without a date and without agreeing on a scale, and it is due to the business public to say that the concessions made by the workmen were not, in the opinion of the manufacturers, sufficient to justify them in signing the scale and binding themselves for another year. Except the 50 cents per ton conceded on boiling, there was practically no relief afforded to the general iron trade. On plate mills averaging 30 tons and over per turn a 10 per cent. cut was conceded. This covers but one mill in the city. About 27 per cent. on finishing was conceded on certain structural mills, which reaches only two firms in Pittsburgh. With the exception of the drop on boiling, the reductions were special and exclusive in their application, and afforded no relief to the general iron trade of the Pittsburgh district. All told, I believe, they will apply to only about four mills in Allegheny County. This discrimination is very unjust, and will meet with merited condemnation on the part of both manufacturers and workmen.

"As the matter stands now the conferences are ended, and manufacturers will make terms with their workmen direct. It is more than likely that some of them will endeavor to make their mills non-union.

"Last year the union mills were stopped two months (one-sixth of a year) haggling over the scale, and nearly every year of late a longer or shorter interruption of trade seems to have been necessary. Meantime the non-union mills are at work and outside mills are working 'on conditions' and all are feeding on our trade. All business is more or less demoralized during these scale-adjusting periods and the time has about come to put a stop to the whole of it. It can and must be done away with. It will not do to sign the

scale and end it. In times like these that is no good answer to the question and furnishes no adequate solution of it. The best interests of both manufacturers and workmen of Pittsburgh and of all its business men demand that the whole thing be done away with and that Pittsburgh be no longer made the battle ground for these contests, and her industrial and business interest paralyzed one or two months every year unnecessarily in this manner."

The concerns who have heretofore signed the Amalgamated scale and who are most seriously affected by the failure to arrive at a settlement are: Oliver Iron & Steel Company, A. M. Byers & Co., H. Lloyd's Sons Company, Keystone Rolling Mill Company, Lockhart Iron & Steel Company, Monongahela Iron & Steel Company, Pittsburgh Forge & Iron Company, Zug & Co. (limited), Phillips, Nimick & Co. and Lindsay & McCutcheon.

It is not improbable that some of the above concerns, who have become thoroughly disgusted with the methods of the Amalgamated Association, may break off all relations with that organization and operate their mills in the future with non-union men. From the Amalgamated Association comes the information that the scale as signed by the J. Painter & Sons Company will be prepared in book form and presented to the manufacturers for their signatures next week. Until this is done it is impossible to state what action will be taken by the manufacturers, and whether additions will be made to the already large list of non-union mills in the Pittsburgh district or not. At a well-attended meeting of the roughers, held in Pittsburgh on Sunday last, the following resolution, which explains itself, was adopted:

*Whereas*, The roughers in joint meeting assembled, after discussing the object of their call, pro and con, and after giving questions due deliberation, resolve that we express full confidence in the ability of the Conference Committee of the Amalgamated Association, and retain our loyalty to the same, believing them to know what is to the betterment of the condition of the roughers.

From the Mahoning Valley comes the information that the iron manufacturers at that place have decided to insist on their demands for a reduction to \$5 per ton for boiling and a reduction of 10 per cent. in finishers' wages. They also demand that certain mills in the Mahoning Valley be classified the same as Jones & Laughlins, Limited, and the same wages to rule is called for in the scale signed last week by that firm. It is claimed that the signing of the scale by the Union Iron & Steel Company for their Pomeroy Rolling Mill at Pomeroy, Ohio, will not affect the other manufacturers. Since our issue of last week the following named concerns have signed the iron scale, subject to any changes that may be made when it has been adopted:

Union Iron & Steel Company, Youngstown, Ohio, for Pomeroy Rolling Mills, Pomeroy, Ohio.  
Tyler Tube & Pipe Company, Washington, Pa.  
Central Iron & Steel Company, Brazil, Ind.  
Sharon Iron Company, Limited, Sharon, Pa.

British trade with Cuba, says Consul Gollan, has almost become a thing of the past, and under the recent reciprocity treaty the United States practically supplies all the wants of the island and receives all its produce.

## OBITUARY.

ALFRED BURKINSHAW.

Alfred Burkinshaw of Aaron Burkinshaw's Sons, Pepperell, Mass., died on June 28. Mr. Burkinshaw was the oldest son of the late Aaron Burkinshaw, who came to this country from England in 1848 and located in Connecticut, where he worked at his trade of grinding pocket-knife blades until 1856, when he removed with his family to Pepperell. Alfred Burkinshaw was also a grinder and finisher of pocket-knife blades, and was actively identified with the business of Aaron Burkinshaw's Sons until about two years ago, when he was obliged to withdraw on account of failing health.

RICHARD T. AUCHMUTY.

Col. Richard Tylden Auchmuty died on Tuesday morning at 4.30 o'clock at his summer residence at Lenox, Mass. Though he had been ailing for some time, his death was sudden. Colonel Auchmuty was a descendant of a Scottish family which settled in New York in the early days of the city. The Rev. Samuel Auchmuty, his great-grandfather, was made rector of Trinity Church in 1763. Colonel Auchmuty was born in New York in 1831. After leaving college he studied architecture in the office of James Renwick, with whom he afterward entered into partnership. At the beginning of the war he answered the first call for men, and was appointed Assistant Adjutant-General of Volunteers. He served with distinction during the campaigns of the Army of the Potomac in 1862 and 1863. In 1864, compelled by ill health to retire from active duty in the field, he was assigned to the War Department at Washington, where he remained until the close of the war. In 1865 he married Miss Ellen Schermerhorn. After the war he retired from active business life, and he devoted himself to philanthropic pursuits, of which the most important was the founding in 1881 of the New York Trade Schools, which now occupy an entire block at First avenue and Sixty-seventh street, where 500 boys are educated. Colonel Auchmuty spent much money on these schools, presenting to the trustees the land and buildings, and upon the incorporation of the schools a year ago the sum of \$100,000. For the out-of-town pupils he erected a large building containing dormitories, in Second avenue and Sixty-seventh street. Instruction was given according to his own system. He also assisted in founding the Mechanical Trade Schools of the Philadelphia Builders' Exchange in 1889. He had been troubled during the past year by an injury to one of the bones of his left leg, and it became necessary in March to amputate the leg. Since that time he has been failing in health.

The Columbia Iron Works have notified the Navy Department that the cruiser "Detroit," built by them, is ready for delivery to the Government. The reports of the Bureau of Engineering, recommending the acceptance of the vessels, are in the hands of Secretary Herbert. The vessel will be sent to the Norfolk Navy Yard, where she will stay until she goes into commission.

The number of furnaces in blast in Belgium at the end of June 1893 was 25, while there were 22 out of blast.

## MANUFACTURING.

Iron and Steel.

Sharon Furnace of Hall & Co., at Sharon, Pa., has been banked down temporarily. No repairs are contemplated to the furnace at this time.

The Bellefonte Furnace Company, operating furnace at Bellefonte, Pa., banked the stack down on Monday, the 17th inst., for 60 days or longer. This firm have about 6000 tons of iron on hand, and their furnace will remain idle until this stock has been materially reduced.

Judge Sheppard has directed W. T. Armistead, receiver of the Lone Star Iron Company of Jefferson, Texas, to put the furnace in operation until the present supply of raw material is worked up. It is estimated that this material when worked into pig iron will be worth \$50,000, and it is thought that these proceeds will clear the company's indebtedness. The liabilities of the company are placed at \$224,000 and the assets at \$1,118,000.

At the annual meeting of the stockholders of the Stirling Steel Company of Pittsburgh, with works at Demmler, Pa., the following directors were elected: C. Y. Wheeler, John M. Hughes, C. W. Mackey, J. W. Rowland and S. Beymer. The directors organized by electing C. Y. Wheeler, president; C. W. Mackey, vice-president; John S. Lyon, secretary, and A. S. Beymer, treasurer. The above concern give employment to about 200 men, their product consisting of high-grade tool steel and the Wheeler stirring armor piercing projectiles. No labor organization is recognized by the firm, although they do not object to their men belonging to any labor organization they see fit. The men work under a special scale, which is satisfactory to them and to the firm. The plant was idle for about a week undergoing repairs, but has again resumed operations with good prospects of being operated to its full capacity for the next year, as the firm have a Government contract for armor piercing projectiles amounting to about \$300,000.

The Parkesburg Iron Company at Parkesburg, Pa., issued an execution at Pittsburgh last week against the Duquesne Tube Works Company of that city for \$13,170.88, the claim being for material furnished the defendants.

The Brown-Bonnell Iron Company, Youngstown, Ohio, have commenced the erection of a new warehouse building, which is to be 300 feet long by 70 feet wide. It is expected that the building will be completed about September 1 next. A new 1000-gallon fire pump will be put in, and also an automatic sprinkler in pattern and machine shop. Falcon furnace and the nail factory of the above firm will be dismantled at an early date.

The plant of the Cherry Valley Iron Works at Leetonia, Ohio, manufacturers of pig, muck and bar iron, was closed down for one week for repairs, but is again in operation. The blast furnace of the above firm is running as usual, and also their coal mines. At the latter place the firm are putting in two of the Wilson automatic coal dumps furnished by the Pittsburgh Coal & Ore Dump Company, Pittsburgh, and it is expected to have them in operation some time during this month.

A large number of men have been suspended at the Edgar Thomson Steel Works, Bessemer, Pa. These include 25 men in the finishing department and about 100 laborers. Lack of orders is the reason given for this step.

At Pittsburgh last week a bill in equity was filed asking for an injunction to prevent Park Brother & Company, Limited, from seizing upon recent assets of Duquesne Tube Works Company of Pittsburgh. The bill was filed by Thomas Thorne, assignee, and the case will be argued in a few days.

The entire plant of the National Tube Works Company, at McKeesport, Pa., which has been idle for several weeks undergoing repairs, has again resumed operations with the exception of the puddling and muck mill departments. It is stated that the concern have enough muck iron on hand to supply their needs for several weeks yet.

The Cambria Iron Company, Johnstown, Pa., have dropped quite a number of men from the pay rolls on account of the depression existing in business circles.

The Andrews Brothers Company, proprietors of the Haselton Iron Works of

Haselton, Ohio, are adding two new Porcupine boilers to their plant, and are also making other extensive improvements and additions.

An effort will be made by W. C. Prescott, president, and Campbell Dick, director of the Embreeville Freehold Land, Iron & Railway Company of Embreeville, Tenn., to straighten out the difficulty arising from a conflict between the State and United States Courts over an assignment recently made by the company. The furnace was shut down some weeks ago and a deed of trust executed to S. J. Kirkpatrick, the company's attorney, conveying \$40,000 worth of property to satisfy local creditors, but Judge Key appointed Stephen N. Noble of Anniston, Ala., as receiver, in accordance with a prayer set forth in a bill filed in the United States Court by Yoe and Cornick for C. G. Blake of Cincinnati and other creditors not named in the deed of trust. The complainants charge that the trust deed is void because not authorized by the directors and not bearing the seal of the company and that the company were insolvent. The directors claim that the company are solvent and that they will soon dispose of the receiver and put the furnace in blast. The company owe Blake \$10,000; the Pittsburgh Iron & Engineering Company have a mechanic's lien on the furnace for \$54,457; the East Tennessee, Virginia & Georgia Railroad \$12,000, and others which will run the liabilities to \$100,000. The entire property of the company is valued at \$600,000.

It is now stated that the Talladega Furnace at Talladega, Ala., will go into blast at an early day. A mortgage has been recorded for \$200,000 given by the Talladega Furnace Company to A. G. Parrish of Selma, Ala., as trustee for the bondholders, and active preparations are now being made for resuming work at the plant.

The Andrews Brothers' Company of Youngstown, Ohio, proprietors of the Haselton Iron Works, Haselton, Ohio, are putting in three new Adams' porcupine boilers into the finishing department of their mills. Two new roll lathes are also being added. The entire plant of this firm is now closed undergoing repairs, which will amount to \$18,000 or \$20,000.

Hereafter every department of the Edgar Thomson Steel Works at Bessemer, Pa., will be closed down on Saturday morning of each week at six o'clock. The explanation given for the taking of this step is that enough rails can be made by operating the plant five and a half days per week as the firm can dispose of under the present condition of trade.

Owing, it is said, to the depression in the iron market, the National Furnace Company, at De Pere, Wis., have decided to blow out their furnace. It is not known whether the plant will resume operations, but in no case, it is stated, could the furnace start up again for the next six months.

The repairs to the Slatington Rolling Mill, Slatington, Pa., are progressing rapidly, and it is expected that the mill will start up again in a few days.

The Pottstown Iron Company of Pottstown, Pa., have enlarged their open-hearth furnace, and have again started their puddling plant after having made repairs. The cut nail factory remains idle, and is closed down indefinitely.

On account of the breaking of the hoist engine the Buffalo Furnace Company of Buffalo, N. Y., were obliged to blow out their furnace on July 1. They are now receiving a large amount of Lake ore in vessels for future use, but the furnace will remain out of blast until an improvement in prices takes place. F. E. Bachman, formerly of the Salem Furnace, in Virginia, is now superintendent of the Buffalo plant.

The Arethusa Iron Works of Geo. W. Johnson at New Castle, Pa., have been altered and improved with a view to obtaining a larger output of light sheets for the merchant and roofing trade. The works resumed in full on July 17.

The new addition to the New Castle, Pa., Wire Mill is nearly completed, the shafting being in place and the new machines, about 35 in number, ready to set up.

#### Machinery.

The Robert L. Walker Smokeless Furnace Company of Pittsburgh have recently received contracts for placing their furnaces in the new North school building now being erected in that city, and also in the Episcopal Home and the Deaf and Dumb Institute at Edgewood, Pittsburgh. The return

tubular boilers equipped with Walker furnaces at the plant of the Totten & Hogg Iron and Steel Foundry Company in Pittsburgh are now in successful operation, and it is claimed that only one-third as much coal is being used as was required with the old two-flue boilers which these replaced.

The Leechburg Foundry & Machine Company of Pittsburgh have received an order from Marshall Brothers & Company for two Mesta patent combination 36-inch trimming shears.

John Miller of the Youngstown Foundry & Machine Shop, Youngstown, Ohio, recently turned out two pairs of 20-inch muck rolls for a Youngstown concern, and has lately booked orders for two 24 inch chilled sheet rolls for the New Philadelphia Iron & Steel Company, New Philadelphia, Ohio, and two 24-inch chilled sheet rolls for the Reeves Iron Company, Canal Dover, Ohio. In addition to the above Mr. Miller has received an order for one set of three-high angle rolls for the 20-inch mill of the Brown-Bonnell Iron Company, Youngstown, Ohio, and one pair of roughing muck rolls for the Union Iron & Steel Company of Girard, Ohio.

About 300 men have been suspended for an indefinite period at the works of the Westinghouse Air Brake Company, at Wilmerding, Pa., and it is probable that an additional number of men will be dropped from the pay rolls during this month, unless additional orders are received.

The Marshall Foundry & Construction Company of Pittsburgh have recently furnished some large ingot molds to the Homestead Steel Works, at Homestead, Pa. One of these molds measures 27 x 82 x 130 inches and is for the armor plate department. It weighs in the neighborhood of 6000 pounds.

The first firm to be brought to Sidney, Ohio, after the passage of the act empowering the corporation to borrow money for improvement purposes was the Sebastian-May Company, lathe manufacturers of Cincinnati, who received \$11,000 for moving to this town. A large building was put up and the concern went to work in the autumn of 1890. In 1891 the controlling interest was bought by A. P. Wagner from Mrs. Clara Sebastian, John Kelley and B. Sebastian, Jr., a large sum being paid for the good will. Sebastian then returned to Cincinnati and engaged in the manufacture of lathes. Jacob May continued in Sidney, having charge of the mechanical part of the business. Recently Mr. Wagner bought his interest in the concern and he has now gone back to Cincinnati and entered the employ of the Sebastian Lathe Company.

The Sebastian-May Company, as now organized, commence a new career under the sole control of A. P. Wagner. Since the change was made the shop has been completely renovated. The new superintendent is C. H. Maltby of Dayton, and his assistant, J. Rahn, jr., of Cincinnati. A pattern room is now being equipped, and before long the concern will put their intention into practice of manufacturing, besides the cheap lathe heretofore put out by the Company, another which will be the best possible product of good materials and workmanship. These new tools will not be in the market before autumn, when the Company's name will be changed to the A. P. Wagner Machine Tool Company.

The Peerless Foundry Company of Alter street, Philadelphia, composed of seven practical molders of large and varied experience, commenced business a few months since. The company have been brought into especial prominence among the trade on account of their ability to turn out castings requiring very intricate core work. They state that with the appliances they have in use they are able to make castings hitherto not attempted by the trade. They have a quantity of orders in hand for hardware castings, typewriter and sewing machine parts, gears and delicate castings for light machinery, as well as for general foundry work. The company are at present furnishing employment for 11 hands.

The plant of the Valley Foundry & Machine Works, at Montgomery, Ala., which were recently destroyed by fire, will be rebuilt at once, and the former capacity of the plant will be increased.

The Enterprise Foundry at Rochester, N. Y., was slightly damaged by fire the other day.

It is expected that a settlement of the difficulties between the striking molders of J. Emory Jones' foundry at Rochester, N.

Y., and their employer will soon be made. The strike has been on about three months. It is understood that an amicable agreement will be reached.

The stockholders of the Holly Mfg. Company of Lockport, N. Y., have recently elected the following officers: President, T. T. Flagler; secretary, C. G. Hildreth; treasurer, H. H. Flagler; general foreman, Perry Stowell; superintendent and engineer, Frank W. Holly; directors, T. T. Flagler, H. H. Flagler, C. G. Hildreth, J. Carl Jackson and Jesse Peterson, of Lockport; W. H. Wells, Jr., and P. H. Lineen, of Chicago. The company were shown to be in a most flourishing condition and the outlook is good.

The statement that there was a possibility that some of the men at the Malleable Iron Works in West Troy, N. Y., would shortly be laid off is denied. The company have plenty of orders on hand, and instead of laying men off are considering the matter of increasing their force of molders.

The Carnegie Steel Company, Limited, of Pittsburgh have placed an order with the Yale & Towne Mfg. Company of Stamford, Conn., through their Pittsburgh representative, F. G. Tallman, for 11 10-ton three-motor electric traveling cranes. These cranes are to be used at the Homestead Steel Works in taking beams from the cooling tables and distributing and loading them on cars ready for shipment. These cranes will all be used out of doors, unprotected from the weather, and this order is said to be the largest single order ever placed for electric travelers and it is also said to be the heaviest indorsement of electric traveling cranes for any specific purpose in and about steel mills.

Geo. H. Eaton & Co. of Boston recently fitted up a plant at Stoneham, Mass., for the manufacture of heavy machinery. About \$85,000 worth of machinery had been placed in position and all was ready to begin business when the entire establishment was destroyed by fire. The firm's loss is about \$100,000, but fortunately for them an insurance had been placed on the buildings and contents only a few days previous to the fire.

Desner & Ritchie, Detroit, Mich., proprietors of the East End Boiler Works, have begun the erection of a new boiler shop, 90 x 60 feet.

The Bigelow Boiler Company, New Haven, Conn., have granted their 150 boiler makers ten hours' pay for nine hours' work.

At the works of the Champion Iron Company, Kenton, Ohio, a new foundry building has taken the place of the one destroyed by fire a short time since. The new structure is much more conveniently arranged and better equipped than the foundry burned.

The entire plant of the Empire Manufacturing Company at Keokuk, Iowa, has been destroyed by fire. The loss is placed at \$60,000, while the insurance is only \$25,000. The company manufactured agricultural implements, and the stock at the time of the fire was not large.

The Phoenix Foundry (M. Burns & Co., proprietors), Leavenworth, Kan., has been burned at a loss of \$8000.

The Eastern Forge Company of East Deering, Me., have commenced the erection of a brick building, 150 x 100 feet, to be used as a machine shop.

#### Miscellaneous.

The Manufacturers' Natural Gas Company of Pittsburgh have declared the regular monthly dividend of one-half of one per cent.

The Allegheny Heating Company, Allegheny, Pa., have declared the regular quarterly dividend of 2 per cent., and an extra dividend of 5 per cent., payable on July 20.

The People's Natural Gas & Pipeage Company of Pittsburgh have declared the regular quarterly dividend of 2 per cent., payable to stockholders on record July 20.

The Berlin Iron Bridge Company of East Berlin, Conn., are building the iron roof on the new purifier house for the Philadelphia Gas Company, at Philadelphia, Pa. The building will be 70 feet wide and 180 feet long, the roof constructed entirely of iron, covered with slate. The new power house for the Worcester Traction Company will also be designed and built by the same company.

The new tube works in course of erection by the Edison General Electric Company of Schenectady, N. Y., are approaching completion.

# TRADE REPORT

Stagnation characterizes the markets along the whole line of Iron and Steel products in all sections of the country without exception. In some departments the condition of the industry is unprecedented.

The Lake Superior Ore and allied transportation interests have never suffered as they are now doing, the large mines and carriers having in former periods of depression boasted of at least moderate profits. The troubles of the Schlesinger syndicate, which, by the way, has no connection with the gentleman of the same name, who is well known through his former connection with the firm of Naylor & Co., seem to bring to a crisis ambitious schemes. The vessel interest is much depressed, so that altogether Cleveland is now a very blue center.

Nor is the Lake Superior the only ore district which is suffering. The canceling of orders by customers has led to the closing down of magnetite mines in New York and New Jersey, and it is understood that Lake Champlain ores have been offered at exceptionally low prices.

With Coke apparently on the downward grade toward the \$1 mark and Ore at the lowest figures made, very cheap Pig Iron ought to be made during the second half of this year. Whether this will mean that the producers will secure a modest profit or promptly surrender their advantages to buyers remains to be seen.

So far as Bessemer Pig is concerned one fact will play an important part, and that is that the quantity which will be used for the manufacture of Steel Rails during the second half of the year will be very small. The rail mills have practically no orders of consequence and have very little to expect for the next two or three months.

In finished Iron and Steel the most telling event is the disagreement on the Western wages scale. At the present writing the outlook for an early adjustment does not look particularly brilliant. To the trade at large this will not be unwelcome news, since it cuts off some of the superabundant supply. The works directly affected have the choice of keeping closed down and losing trade, which really means very little, or of starting under the thumb of the Amalgamated Association.

Heavy carrying charges must be a source of much loss and anxiety to the bull clique in Pig Tin. Transactions during the week have been on quite a considerable scale. Copper and Lead have been weakening. The prospect that a bull campaign in the former might lift the metal out its rut has again faded away.

## Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., July 18, 1899.

The condition of the Iron and Steel trade is not materially different from what it was a week ago. The demand, such as there is, is for small lots, and even of these the number is few and far between. The continued stringency in money leads every one to the most conservative position possible, and while there must be some improvement soon, the outlook for Iron is anything but encouraging. Nevertheless, the proper remedies have been applied, and reaction may not be as distant as would appear from immediate indications. The Iron trade if left to itself would make a very quick recovery, and it may do so eventually regardless of outside influences, but for the present it is dominated by the financial situation, so that if any one can tell what the condition of the money market will be three months hence it will not be hard to guess with a fair degree of accuracy in regard to Iron. But apart from money, the Pig-Iron interest has placed itself in an impregnable position. The reduction in output and the closing of Ore mines makes it reasonably certain that whatever else happens Pig Iron cannot be forced to lower figures. There may be isolated transactions at lower prices, but the general market is pegged at current quotations, and some of these days there will be a new illustration of the story in ancient writ of the five wise virgins who had made provision for contingencies and the five who had made no such provision, and were, therefore, left out in the cold.

**Pig Iron.**—Not much business in this line, but a steady tone is noticeable in quotations. The heavy decrease in production combined with light stocks imparts confidence to holders of good brands, and while it is hardly a time to talk higher prices, it is equally clear that there is going to be nothing lower. This, of course, applies to standard brands only, although, so far as we can learn, there is very little Iron around of any description and therefore no likelihood of sales at much less than current quotations. Consumers find their business is in such poor condition, however, that they cannot enthruse very much on raw material, and until they see some improvement ahead of them are not likely to buy very liberally; so that until then about all that ought to be expected is a stupidly dull but persistently firm market. Meanwhile business is being done at last quotations, which are as follows for Philadelphia and equivalent points, and from 20¢ to 30¢ less for Southern Irons at points accessible by water:

American Scotch, No. 1X...	\$16.00	@	\$16.50
American Scotch, No. 2X...	15.00	@	15.50
Standard Penna. (Lake Ore), No. 1x	15.00	@	15.50
Standard Penna. (Lake Ore), No. 2x	14.00	@	14.50
Standard Virginia, No. 1x...	14.50	@	14.75
Standard Virginia, No. 2x...	13.75	@	14.25
Virginia and Southern, No. 1x, Soft	14.25	@	14.50
Virginia and Southern, No. 2x, Soft	13.50	@	13.75
Standard Penna. and Virginia Forge	13.00	@	13.25
Ordinary Forge	12.50	@	12.75

**Bessemer and Low Phosphorus Iron.**—There is very little doing, but as supplies are about in the same proportion, prices are fairly steady. Sales have been made at \$16 @ \$16.25, delivered, for Standard Bessemer, and \$18 @ \$18.25 for Low Phosphorus, but it is not possible to work off larger lots than 500 tons at a time, and in the

higher grades, carload lots up to 100 or 200 tons. At the inside figures prices are firm, some holders being unwilling to meet the demand at these figures.

**Steel Rails.**—Nothing doing except in a very small way at unchanged prices, say \$29, f.o.b. cars mills. Girder Rails are in good demand, however, and mill's that are in a position to fill orders promptly have no difficulty in securing all the business they want at \$34 to \$36, which includes Fastenings and other necessary Fittings.

**Steel Billets.**—The demand is very light at the moment, although there is some inquiry, and some little business, but hardly enough to give a definite status to quotations. Asking prices for Western Steel are \$23.50 @ \$23.75, delivered, but consumers intimate that they have been asked to make bids at \$23.25, but have declined doing so. This may not be an indication of great weakness on the part of holders, but shows timidity on the part of buyers, which may or may not be justified by later developments. If the mills were at work on Billets to as great an extent as usual prices would probably weaken, but with continued suspension of many large concerns it may result in a movement in the opposite direction. The situation is, in fact, one of great uncertainty, hence there is no great disposition to operate, either as buyer or seller, until the outlook becomes less obscure than it is at present.

**Muck Bars.**—Prices are nominally \$23.25 @ \$23.50 delivered, but there is very little demand, and to effect sales in quantity lower figures would have to be accepted.

**Merchant Bars.**—There is a slight improvement in the demand for small lots, but there is no business of any consequence. Prices are still at the lowest ever quoted, with no immediate prospect of recovery, as there is plenty of competition even at the unsatisfactory rates which are now ruling. These are nominally 1.60¢ @ 1.65¢ for city deliveries of best refined Iron and 1.50¢ @ 1.55¢ at interior points, and with only a small amount of work in hand the situation is discouraging in the extreme.

**Plates.**—There is some little business doing in small lots, but anything beyond that is hardly taken into account in times like these. Some of the mills are running moderately full, but the prospect for their continuance is not good, consequently business that can be picked up at anything near current quotations is eagerly sought after. It is expected that things will improve soon as money gets a little easier, but in the meanwhile there is no difficulty in securing liberal concessions on any fair-sized orders. Nominal quotations are about as follows, delivered:

	Iron.	Steel.
Tank Plates....	1.80 @ 1.85¢	1.70 @ 1.75¢
Bridge Plates .....	1.75	1.80¢
Shell.....	2.00	2.15¢
Flange.....	2.70 @ 2.90¢	2.20 @ 2.40¢
Fire Box.....	3.00 @ 4.00¢	2.50 @ 2.70¢
Special qualities.....	3.25	3.75¢

**Structural Material.**—The contract for several hundred tons of material for the apartment house, Broad and Fairmount avenue, has again been postponed. That of 4000 tons for the Bourse Building is to be given out to-morrow, but there is not much certainty in regard to anything these days. Prices are hardly quotable, some mills being so hungry for business that \$2 or \$3 @ ton is as nothing, when the order is of any size. Nominal prices are as follows, but only



small lots can be placed, sharp concessions being required on lots of 100 tons and upward: Beams, Channels or Tees, 1.90¢ @ 2.10¢, according to size of order; Angles, 1.80¢ @ 1.85¢; Universal Plates, 1.75¢ @ 1.80¢.

**Sheets.**—There is quite a good inquiry for Sheets, but Western mills quote prices which are much below what local mills can reach, except for very inferior qualities. Small lots of the best makes are quoted about as follows, but there is plenty of material at lower figures:

Best Refined, Nos. 14 to 20...2.75¢ @ 2.85¢  
Best Refined, Nos. 21 to 24...2.90¢ @ 3.00¢  
Best Refined, Nos. 25 to 26...3.15¢ @ 3.20¢  
Best Refined, No. 27...3.30¢ @ 3.40¢  
Best Refined, No. 28...3.40¢ @ 3.50¢  
Common, ½¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being ¼¢ @ ½¢ lower than above named:

Best Soft Steel, Nos. 14 to 16...2½¢ @ 2½¢  
Best Soft Steel, Nos. 18 to 20...2½¢ @ 3¢  
Best Soft Steel, Nos. 21 to 24...3½¢ @ 3½¢  
Best Soft Steel, Nos. 25 to 26...3½¢ @ 3½¢  
Best Soft Steel, Nos. 27 to 28...3½¢ @ 3½¢  
Best Bloom Sheets, ¼¢ extra over the above prices.  
Best Bloom, Galvanized, dis...70 and 5¢ @ 70 and 10¢

**Old Material.**—There is rather more disposition to place orders, but prices offered are extremely low, and even then large lots are not wanted. Asking prices about as follows: Old Iron Rails, \$16 @ \$17, delivered; Old Street Rails, \$18 @ \$19; Old Steel Rails, \$14 @ \$14.50; No. 1 Railroad Scrap, \$13.50 @ \$14.50, delivered; \$7.50 @ \$8.50 for clean new No. 2 Light Scrap; \$11 @ \$12 for Machinery Scrap; \$11 @ \$11.50 for Wrought Turnings; \$7 for Cast Borings, and nominally \$20 for Old Fish Plates, and \$13 for Old Car Wheels.

## Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts.,  
CINCINNATI, July 19, 1893.

There cannot be said to be any improvement in the market for Pig Iron during the week, and yet there has been an increased volume of business, both for spot and forward delivery, and there were some inquiries for deliveries running into March of next year, but while the furnaces are disposed to meet the demand in a liberal spirit, and are willing to sell up to the close of this year at the rates now current, they draw a line there and insist upon an advance for deliveries beyond that. The demand is mainly for single car lots of most kinds of Iron, but there have been purchases of 500 to 700 ton lots, and even 4000 tons, mainly of No. 2 Foundry, for delivery running through this year. Prices have not yet been made public, but it is presumed that No. 2 Foundry sold at \$8 65, f.o.b. Birmingham, as it is known that it can be bought at this price. While there are no urgent offerings of other kinds of Iron, a favorable bid will bring them to light, and it seems to be pretty well settled that concessions of about 10¢ per ton can be obtained on any grade from the quotations, and, as we have before observed, if a buyer is in a position to pay cash on prompt shipment he can buy at 25¢ per ton less than quotations. There is scarcely any demand for Charcoal Iron, but Gray Forge Coke Iron is selling fairly well. Quotations are as follows:

### Foundry.

Southern Coke, No. 1...\$13.00 @ \$13.25  
Southern Coke, No. 2...11.50 @ 11.75  
Southern Coke, No. 3...11.00 @ 11.25

Ohio Soft Stone Coal, No. 1...16.00 @ 16.25  
Ohio Soft Stone Coal, No. 2...15.00 @ 15.25  
Lake Superior Coke No. 1...15.00 @ 15.25  
Lake Superior Coke No. 2...14.00 @ 14.25  
Hanging Rock Charcoal, No. 1...18.50 @ 19.00  
Hanging Rock Charcoal, No. 2...17.50 @ 18.00  
Tennessee and Alabama Charcoal, No. 1...15.00 @ 15.50  
Tennessee and Alabama Charcoal, No. 2...14.00 @ 14.50

### Forge.

Gray Forge...10.50 @ 10.75  
Mottled Coke...10.50 @ 10.75

### Car Wheel and Malleable Irons.

Standard Southern Car Wheel...16.75 @ 18.00  
Lake Superior Car Wheel and Malleable...17.25 @ 17.50

## St. Louis.

(By Telegraph.)

Office of *The Iron Age*,  
Bank of Commerce Building,  
St. Louis, July 19, 1893.

**Pig Iron.**—The past week has been merely a repetition of the preceding one. Sales are few and far between, and while production shows a heavy falling off consumption is likewise effected and prices fail to improve any. Manufacturers are moving with extreme caution and are buying only what their immediate needs require, and it is impossible to convince them that the prices of Iron at present prevailing are as low as they will go. The money market controls the situation, and until there is some improvement in this direction any betterment in the Iron market is out of the question. It is not likely that any radical change in prices will take effect, as furnacemen just now are very particular to whom they sell, and prefer to keep their product on hand rather than be loaded up with paper which is unnegotiable. Sales are made on the basis of the following prices which are for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry...\$13.25 @ \$13.50  
Southern Coke, No. 2 Foundry...12.00 @ 12.25  
Southern Coke, No. 3 Foundry...11.00 @ 11.25  
Southern Gray Forge...11.25 @ 11.50  
Southern Car Wheel...18.25 @ 19.25  
Lake Superior Car Wheel...17.00 @ 17.50  
Ohio Softeners...16.00 @ 17.00  
Missouri Charcoal, No. 1 Foundry...13.00 @ 13.50

**Bar Iron.**—There is nothing new to report in this department. Mills are scanning orders very carefully, and only the desirable houses are now being accommodated with material. Business is naturally curtailed by this method and stocks are gradually accumulating. Mills quote 1.45¢ @ 1.47½¢, according to quantity. Jobbers ask 1.55¢ @ 1.60¢ for small orders from store.

**Barb Wire.**—The movement in Barb Wire is restricted to small lots. With the curtailed production brought about by the shutting down of the mills, prices will be steadied somewhat, although any improvement just now seems out of the question. Mills quote \$2 for carload lots of Painted to jobbers, with 40¢ per cwt. additional for Galvanized.

**Wire Nails.**—There is no change to note in the Wire Nail market. The demand is light, and while mills are, generally speaking, shut down, stocks appear moderately heavy, and there is no difficulty in obtaining prompt shipment. Mills quote \$1.50 for carload lots to jobbers. The jobbing houses report a fair trade at \$1.60.

**Rails and Track Supplies.**—There is absolutely no market for Steel Rails at any price, and nominally they are quoted at \$31 @ \$31.50. Track Supplies are in the same condition, and are quoted as follows: Splice Bars, 1.70¢;

Spikes, 2¢; Bolts, Square Nuts, 2 50¢; with Hexagon Nuts, 2 60¢. Old Rails are offered at \$16 without any sales.

**Pig Lead.**—Sellers are offering Lead at 3.25¢ without finding any buyers. Trade is lifeless, and it is impossible to stimulate business even by the offer of lower price than above mentioned. Consumption shows a steady falling off, and stocks in smelters' hands are reported to be moderately heavy.

**Spelter.**—This metal continues to be dull and neglected at from 3.95¢ to 4.10¢, according to quality of metal offered.

## Boston.

Office of *The Iron Age*, 146 Franklin St.,  
BOSTON, July 18, 1893.

The feature in the Iron market this week is only a summer dullness. It is possible that the financial situation has improved a little, but the attention of many people, including merchants even, is drawn irresistibly toward the seashore and the mountains, with the World's Columbian Exposition also a detracting factor. Hence business is bound to suffer. Buildings under way are being completed, but there is rather more than the usual summer dearth of new plans and specifications. Considerable material is wanted right along in the buildings under contract, with considerable movement in Iron into bridge building; otherwise the position would be absolutely dull.

**Pig Iron.**—Pig Iron is quiet. The feeling is rather better since the announcement of the reduction in the number of furnaces in blast during the month of June, and in the reduction in stocks of Iron. But it is suggested by merchants in the trade that the reduction in production is probably not any more than the falling off in consumption, though the New England foundries are still fairly busy, with scarcely any idle ones. Still these foundry people are remarkably conservative about buying Iron. Prices on Southern Pig Iron are understood to be pretty firmly maintained, with Iron, ex-dock, in Boston quoted at: No. 1, \$15 @ \$15.50; No. 2, \$14 @ \$14.50; No. 3, \$13 @ \$14. Virginia Iron is selling in this market at \$15.50 for No. 1, \$14.25 @ \$14.50 for No. 2. Pennsylvania Iron is dull and nominal at: No. 1, \$14.50 @ \$15; No. 2, \$13.50 @ \$14; Gray Forge, \$13 @ \$13.50. These prices are for Iron at shipping port, and spot lots would cost more, by the amount of freight and other charges. Western Irons are sold to some extent at \$17 @ \$17.50 for Ohio Iron, delivered in Boston.

**Bar Iron.**—Trade in Bar Iron is quiet, as may be expected at this season of the year. New England Rolling mills are busy, however, with the market steady on Old Material Bars at 1.60¢ @ 1.65¢ from mill; from store, 1.65¢ @ 1.70¢. The best Bars from Puddled Iron are quoted at 1.80¢ @ 1.90¢ from mill; from store, 1.95¢ @ 2½¢. Norway and Swedish Bars are in moderate request with the spot supply a little short, and it will be short till some imports arrive. The market is quoted at \$66 @ \$66.50 for Bars and at \$70 @ \$72 for Shapes, out of store.

**Building Iron.**—Trade in Building Iron is quiet. As mentioned above, new orders are not a feature of the present time, though there is a fair movement in the completion of contracts.

The tendency is easy, but still no changes in quotations are admitted. Beams and Channels from mill, 1.90¢ @ 2¢; from store, 2½¢ @ 2½¢; Tees, 2.25¢ @ 2.30¢ from mill; from store, 2.40¢ @ 2.60¢; Angles, 1.80¢ @ 2¢ from mill; from store, 2.25¢ @ 3.35¢.

#### Steel, Steel Plates and Steel Rails.

—The market on Steel is steady, with the position of Billets claimed to be more steady. Agents are naming \$25.50 @ \$26 for Extra Soft Billets, with ordinary Bessemer Billets at \$21.50 @ \$22, at mill. The quotations on Manufactured Steel are nominally unchanged at: Bessemer Steel, 2¢ @ 2.10¢; Tire and Sleigh Shoe, 1.90¢ @ 2¢; Sheet, 2½¢ @ 2½¢; American Cast, 6½¢ @ 7¢; English Cast, 13½¢ @ 15¢; American Steel Rails, \$29 at mill. The market on Steel Rails is quiet, so far as the New England roads are concerned, with a small demand for light sections for electric roads. The mills are doing something in Steel Plates, and the feeling is firmer with a part of the mills. Though wanting orders, they have notified their agents that unless they can get 1.80¢ for Tank Plates in large lots, and other prices in proportion, orders need not be taken. These mills do not care to make Plates at less than cost, though willing to run at cost for a season till times shall be better. The quotations on Plates are firm at: Tank, 1.80¢ @ 1.90¢; Shell, 1.85¢ @ 1.95¢; R-fined, 2.05¢ @ 2.12½¢; Fire Box, 2½¢ @ 2½¢.

**Nails.**—Nails continue in fair summer demand, with the quotations steady. Cut Nails, both Iron and Steel, large lots, are selling at \$1.40, and small lots at \$1.45 @ \$1.50. Steel Wire Nails are steady, with the market easy at \$1.60 @ \$1.70 to the trade.

**Pipes and Tubes.**—The movement in Pipe is rather quiet, though there are some waterworks contracts under completion. No new contracts are mentioned. Manufacturers are inclined to shade quotations, though the market is ostensibly steady. Boiler Tubes are dull, with quotations at: 3-inch and over, 67½ % off from list; 2½-inch and under, 65 % off.

**Scrap Iron.**—Scrap Iron is still a very dull feature. The few buyers who will take Iron of this sort get about all they want at nearly their own prices. No. 1 Wrought is quoted at 50¢ @ 53¢, with selections at 55¢ @ 60¢, the latter figures for Old Horseshoes or some other even lengths of excellent quality. Light Iron is quiet at 33¢ @ 38¢, as to quality. Machine Shop Scrap is very quiet at 25¢ @ 30¢ for Cast and at 30¢ @ 35¢ for Wrought.

## Louisville.

LOUISVILLE, KY., July 17, 1893

The market is very dull, the cause being the same reasons that have affected the buying of Iron for several weeks, namely, closeness of the money market, and notwithstanding that buyers are commencing to feel that stocks of Iron are being reduced to a point where any considerable buying would advance prices, consumers are not willing to purchase, owing to their inability on sales of finished product to secure cash or pay in any other manner than by four months' note, which is not acceptable to furnaces in general to-day, owing to banks refusing largely to discount paper. Certain grades of Iron are scarce, and will become more so, and with any easing in money matters prices will improve. In Car Wheel Irons there is nothing

doing, owing to scarcity of work among the companies, and the trouble of those companies who are in position to run finding difficulty in financing at the present moment. For prompt cash concessions in Coke Irons would probably be accepted, where quick shipments could be made, but on long time delivery prices are firm. We quote cash cars Louisville:

Southern Coke, No. 1 Foundry.	\$12.75 @ \$13.25
Southern Coke, No. 2 Foundry.	11.50 @ 12.00
Southern Coke, No. 3 Foundry.	11.00 @ 11.25
Southern Coke, Gray Forge.	10.50 @ 10.75
Southern Charcoal, No. 1 Foundry.	15.00 @ 16.00
Southern Car Wheel.	17.50 @ 17.75
Spathite.	11.50 @ 12.50

## Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street.  
CHICAGO, July 19, 1893

**Pig Iron.**—With the exception of some moderate sized contracts which have been made for local work for season delivery there has been very little doing. Business is confined to customers who absolutely must have iron. Some inquiry, however, is coming from country trade, who appear to be getting ready to buy. This has been a peculiar development of recent years. The buyers, except the largest concerns, purchase for short periods mainly, while the country trade are more and more disposed to contract for six months to a year ahead. The stack demand is now forcing additional furnaces out of blast, and recent visitors to the South report very few active furnaces in that section, even among the most favorably located concerns. Very few furnaces are also in operation in this vicinity, nevertheless the supply of iron is considerably in excess of the demand. There is absolutely no market for Lake Superior Charcoal Iron at present. Odd lots are being offered at cut prices, but consumers make counter offers at such ruinously low figures that sellers will not accept them. We quote regular asking prices Chicago delivery as follows; which is subject to concessions according to circumstances:

Lake Superior Charcoal.	\$16.00 @ \$16.25
Local Coke Foundry, No. 1.	13.50 @ 14.00
Local Coke Foundry, No. 2.	12.75 @ 13.00
Local Coke Foundry, No. 3.	12.50 @ 12.75
Local Scotch.	14.00 @ 15.00
Ohio Strong Softeners.	15.75 @ 16.25
Southern Silvery, No. 1.	@ 14.50
Southern Silvery, No. 2.	@ 14.00
Southern Coke, No. 1.	13.75 @ 13.00
Southern Coke, No. 2.	13.25 @ 12.50
Southern, No. 1, Soft.	12.65 @ 13.00
Southern, No. 2, Soft.	12.25 @ 12.50
Southern Gray Forge.	11.50 @ 12.00
Tennessee Charcoal, No. 1.	16.50 @ 17.00
Alabama Car Wheel.	@ 18.85
Coke Bessemer.	14.50 @ 15.00
Hocking Valley, No. 1.	16.75 @ 17.00
Jackson County Silvery.	16.75 @ 17.00

**Bars.**—No more season buyers are now holding off on the ground that they will be able to do better if they wait till August or September. The representatives of the leading mills favor this position of buyers to some extent. They appear to be very willing to have the placing of contracts deferred, but hope that better prices may be obtained two or three months hence. If the market does not improve, however, they think it will be to the advantage of manufacturers to sell from time to time rather than load with season contracts at such extremely low prices as it would be necessary to make. Car orders have been scarce for some weeks and the recent large failures among car builders will make Bar manufacturers very careful in dealing with this class of consumers. Other customers are purchas-

ing to some extent and within the week there have been quite a number of car-load and even 100 ton lots sold for immediate delivery by mills which are still running. So many mills are now shut down without any immediate prospects of starting that it would seem as if the situation should improve in consequence of the heavy restriction of production. Quotations are continued at 1.45¢, half extras, for common Iron. Some Steel Bars are maintained at about 1.65¢ @ 1.70¢, Chicago, for mill shipment. Prices from store may be quoted at 1.70¢ @ 1.75¢ for either Iron or Soft Steel.

**Structural Material.**—Business has been extremely quiet during the week. Bridge works are taking small quantities of material, but the building trade has been remarkably dull. Mill shipments of Beams are quoted at 1.80¢ @ 1.90¢, Chicago delivery; Tees, 1.95¢ @ 2.05¢; Angles and Universal Plates, 1.75¢ @ 1.80¢.

**Plates.**—About the only trade now coming up is in the line of public work in connection with cities. The country trade is particularly dull. Large buyers note the interesting fact that they have been unable to get lower prices even for spot cash than have been current for the past three months. The mills seem to have anticipated reductions in cost and are now unwilling to go any lower. Mill shipments, Chicago delivery: Tank Steel, 1.75¢ @ 1.85¢; Shell Steel, 2.05¢ @ 2.15¢; Flange Steel, 2.20¢ @ 2.30¢; High Grade Fire Box, 2.75¢ @ 5¢. Store prices are as follows: Nos. 10 to 14 Iron or Steel Sheets, 2.35¢ @ 2.60¢; Tank Steel, 2.20¢ @ 2.40¢; Shell, 2.35¢ @ 2.50¢; Flange Steel, 2.60¢ @ 2.80¢; Boiler Tubes, 67½ % @ 70 %.

**Sheets.**—Nothing new has occurred in the Black Sheet trade. Most mills are so well sold up that they did not seem anxious for new business and those not sold up have shut down, so that there is no pressure to sell. Prices are quoted at 2.90¢ here for mill shipments of No. 27 Common. Small lots from stock are selling at 3¢ for No. 27 Common and 60¢ advance for Wood's Smooth Iron. Galvanized Iron is very dull with 70 and 10 % discount still quoted on mill shipments, but shaded according to circumstances. Small lots from stock are sold at 70 and 5 % off. Sheet Copper is still quoted at 30 and 5 % off for small lots.

**Merchant Steel.**—Reports for the past week are meager, but prices are unchanged for mill shipments. Chicago delivery, as follows: Smooth-Finished Machinery, 1.90¢ @ 2¢; Open Hearth Spring and Smooth-Finished Tire, 2¢ @ 2.10¢; Iron-Finished Tire, 1.70¢; Ordinary Tool, 6¢ @ 7¢; Specials, 12¢ and upward.

**Rails and Track Supplies.**—A considerable part of the business in Steel Rails now being entered consists of light Rails. The demand for standard sections is confined to small quantities only, which are selling at \$30 @ \$32, according to quantity. Splice Bars are maintained at 1.60¢ @ 1.65¢; Track Bolts with Hexagon Nuts, 2.55¢ @ 2.60¢; Spikes, 1.85¢ @ 1.95¢.

**Old Rails and Car Wheels.**—In the light of transactions which have recently occurred in this vicinity, there is good reason to believe that the price of Old Iron Rails is now about \$15.50 @ \$16. Some consumers assert that they are not willing to pay even this much. Old Steel Rails, on a parity with Pittsburgh prices, are now worth about \$9.25



here, short, while long lengths may perhaps bring \$13 or more. Old Car Wheels continue very quiet, with nominal quotations \$14 @ \$14.50.

**Scrap.**—There has been a little movement in the cheapest grade of material, but nothing is reported in the better class of stock. It is probable that buyers may be able to do better than on the following quotations,  $\frac{3}{4}$  net ton: No. 1 Forge, \$12; No. 1 Mill, \$9; Sheet Iron, \$5; Pipes and Flues, \$7.75; Axles, \$18; Horseshoes, \$12; Fish Plates, \$14.50; Spikes and Bolts, \$12.50; Cast Borings, \$5.25; Wrought Turnings, \$7.25; Axle Turnings, \$9; Heavy Cast, \$10; Stove Plate, \$8; Malleable Cast, \$8; Mixed Steel, \$9.50, gross ton; Leaf Steel, \$16.

**Metals.**—Lake Copper has fallen to 10.75¢ for carload lots, owing to the slight demand and the depression in financial matters. Casting Copper is quoted at 10.15¢ with concessions on spot cash. Spelter is nominal, but quoted at 4¢ with trade reported very light. Pig Lead is selling at 3.50¢ for spot cash.

## Pittsburgh.

(By Mail.)

Office of The Iron Age, Hamilton Building, Pittsburgh, July 13, 1893.

A serious hitch has occurred over the settlement of the Iron scale, caused by the refusal of the Amalgamated Association to grant certain reductions in the finishing departments asked by the manufacturers. Charges of bad faith against the Amalgamated Association in granting certain reductions to a local concern and refusing them to others have been made, and it is understood that a good deal of bitterness was shown by both sides at the conference held here yesterday. It is hinted that two or three firms have about decided to make their plants non-union, as they state they will not be able to operate unless they secure the same reductions granted to other concerns. Transactions in the Iron and Steel trades continue to be largely governed by the terms of payment, and where a buyer is in position to put up cash for material, he can get it at prices that in many cases mean a direct loss to the seller. A forced transaction in Bessemer here the other day was at the lowest price ever touched in this market. Muck Bar can be had at almost any price if the buyer has the money to pay for it. Structural Material and Plates are very dull with considerable range in prices, while Rails are almost entirely neglected. The Wire Rod, Wire and Wire Nail mills are nearly all closed for this month by agreement. Some season contracts have been placed for Implement Steel at low prices. Pipes and Tubes are extremely dull, with prices largely in buyers' favor. Coke has declined fully 50¢  $\frac{3}{4}$  ton in price and is now being offered on the basis of "get all you can for it." It is the impression of some in the trade that Connellsville Coke will go to \$1  $\frac{3}{4}$  ton before the downward tendency has been checked. The situation all along the line is about as bad as it could be, but it may turn out to be the darkest hour which comes just before the dawn.

**Plates.**—Sales continue to be confined to small lots, with the demand for Tank Steel better than for the other kinds. A number of the mills in this district are still idle, while those in operation are running only to about half capacity. It is not expected there will be any large transactions until

money gets easier. We quote as follows: Tank, 1.50¢ @ 1.60¢; Shell, 1.70¢ @ 1.80¢; Ordinary Fire Box, 2.25¢ @ 2.50¢; Special, 3¢ @ 3.50¢; Flange, 1.75¢ @ 2¢.

**Structural Material.**—Business continues extremely quiet, with the outlook far from bright. The Homestead plant continues in operation, but is running only to about half capacity. Jones & Laughlins, Limited, have signed the scale, but have not yet started up. The Columbia Iron & Steel Company, with mills at Uniontown, will make extensive repairs before resuming, and have not as yet arranged the wage scale. It is difficult to make quotations, but the following prices are generally quoted: Beams up to 15 inches, 1.50¢ @ 1.60¢, f.o.b. cars Pittsburgh; Angles and Universal Plates, 1.60¢ @ 1.70¢; Tees, 1.75¢ @ 1.85¢, and Z-Bars 1.60¢ @ 1.70¢.

**Muck Bars.**—The market is bare of sales, and best grades of Muck Bars may be nominally quoted at \$22, Pittsburgh.

**Ferromanganese.**—No sales are reported and we make nominal quotations of \$57.50 f.o.b. cars Pittsburgh for domestic.

**Bars.**—A serious hitch has occurred in the settlement of the Iron scale and the conference held yesterday adjourned without a date being set for another meeting. The conference committee of the Amalgamated Association has announced that the scale as signed by the J. Painter & Sons company can be considered as their ultimatum, as no further concessions will be granted. The scales will now be printed in book form by the Amalgamated Association and presented to the manufacturers some time during next week for their signatures. It is not improbable that three or four of the principal firms here will endeavor to operate non union. In the Mahoning Valley everything is closed down, with little prospect of early resumption. Business continues extremely dull, and while some firms could fill orders for a good many sizes from stock there is little call from buyers. We quote Steel Bars at 1.45¢ @ 1.50¢ half extras. Valley Mills are asking 1.40¢ @ 1.45¢ half extras, at mill.

**Wire Rods.**—The market is nominally \$28, with a sale of 400 tons reported at \$27.50 at makers' mill.

**Merchant Steel.**—While the market is not an active one by any means there is a fair run of small orders coming in, with some buyers of Implement Steel covering requirements for the next few months. Production this month will be light on account of repairs and stock taking. We quote as follows: Open-Hearth Spring and Tire, 1.90¢ @ 2¢; Machinery, 1.90¢; Curved Sleigh Shoe, 2.1¢; Flat Shaped and Sleigh Shoe, 1.90¢; Tool Steel, 5.1¢ and upward, according to quality.

**Wire and Cut Nails.**—Stocks of Wire Nails are being diminished by the shut down and prices are showing a little firmer tendency. We quote at \$1.35 @ \$1.40 in carload lots at mill. Cut Steel Nails are in light demand and may be quoted at \$1.05 base, in carload lots at mill.

**Wire.**—We continue to quote Four-Point Galvanized at 2.30¢ @ 2.40¢, and Plain, at 1.90¢ @ 2¢.

**Coke.**—The Connellsville Coke market continues demoralized, both as regards demand and prices, and a large number of ovens in the region have been

blown out, to remain idle until the demand improves, while some of the works are running only two days in the week. The bitter fight between the larger and smaller operators to capture business sent the price down very fast, and Coke is now being offered at almost any price that can be obtained for it. Predictions have been made that Furnace Coke will touch \$1  $\frac{3}{4}$  ton before long. Foundry Coke is also being cut in price, and is being offered as low as \$1.75  $\frac{3}{4}$  ton on board cars in the region. At many of the small works wages have been materially reduced, but the H. C. Frick Coke Company and the McClure Coke Company continue to pay wages based on \$1.90  $\frac{3}{4}$  ton. The detailed report of operations and output for the week ending Saturday, the 8th inst., shows 10,784 ovens in blast and 6540 idle, with a total estimated production of 89,403 tons. Compared with the production of the previous week, this was a decrease of 12,842 tons. This is the greatest drop in the weekly output since the last strike.

(By Telegraph, July 19, 11.30 a m.)

**Pig Iron.**—One or more sales of Bessemer Pig have been made in this market recently on terms of payment equivalent to cash, and these have forced the price of Bessemer down to \$13, Pittsburgh, although some furnaces who are so situated that they can stock their product are doing so in preference to meeting this price. The prospect of some business being done in Steel at an early date is expected to favorably affect the market. The large falling off in production will likely have an influence in the same direction. Gray Forge and Foundry Irons are entirely neglected. We note a sale of 1000 tons of Bessemer at \$13, Pittsburgh.

Neutral Gray Forge.....	\$12.00 @	\$12.10, cash.
All-Over Mill.....	12.00 @	12.25 "
Bessemer Pig.....	13.00 @	13.25 "
No. 1 Foundry.....	13.50 @	13.75 "
No. 2 Foundry.....	12.50 @	12.75 "
Charcoal Foundry No. 1.....	17.00 @	18.00 "
Charcoal Foundry No. 2.....	16.50 @	17.00 "

**Steel Billets.**—There have been some inquiries in the market during the past week and one small transaction is reported as closed at a price not less than \$21, at makers' mill. Negotiations involving a fairly large tonnage are now pending and may be closed during this week. Now, that buying can be said to have fairly started it is believed that inquiries will be more plentiful, as stocks in the hands of consumers were pretty well worked up before the shut down. The market may be quoted at \$21 @ \$21.25. Some concerns are refusing to quote prices until their wage scales have been arranged.

## Cleveland.

CLEVELAND, OHIO, July 17, 1893.

The condition of business here is aptly illustrated by the fact that \$500,000 of city bonds offered for sale at 4 per cent. last week were unsolicited and will be readvertised. City bonds have generally been freely taken by local banks in which Cleveland Iron men are large stockholders, but just now there appears to be no demand for

the city's notes although not the slightest question exists as to their soundness. This financial distrust is nowhere more apparent than in the Iron market, where a large percentage of Cleveland's capital is concentrated.

**Iron Ore.**—With the rate of transportation for Lake Superior Ores reduced to 40¢ @ 45¢ per ton from Escanaba, and to 50¢ from Ashland, the general condition of the market can be surmised. No such a degree of apathy has been reached for many years. The low freight rates would, under ordinary circumstances, be construed into conditions very favorable to buyers, but in the present instance they seem only incidental to the general depression. The rates are really considered lower than the circumstances justify, inasmuch, as they not only presage a losing season for the vessel owners but give the Ore companies and agents no encouragement. As to the Ore market itself there is little to be learned beyond reports of the further curtailing of production. Ore mined earlier in the year is still coming down the Lakes, but in no such quantities as both buyers and sellers anticipated when the season opened. The shipments to furnaces continue fairly good, about 31,000 tons having gone forward last week as compared with 19,000 tons for the same week in 1892. We report a few trifling sales of Bessemer Ore, Cleveland delivery, at \$3.70 per ton, and also a few hundred tons of non-Bessemer at \$2.80.

**Fig Iron.**—The market is about as lifeless as it is possible to imagine it to be. There are, however, certain encouraging indications to be noted. Chief among them is the reported reductions in stocks. It is true that certain buyers have asked that shipments be deferred but it is not believed that this condition of things can much longer continue. No sales of any importance are reported. We quote:

Nos. 1 to 6 Lake Superior Charcoal.....	\$15.75 @	\$16.00
Nos. 1, 2 and 3 Bessemer, per ton..	13.10 @	13.25
No. 1 Strong Foundry, per ton..	13.75	13.75
No. 2 Strong Foundry, per ton..	12.75 @	13.00
No. 1 American Scotch, per ton..	14.25	14.25
No. 2 American Scotch, per ton..	13.25	13.25
Mahoning and Shenango Valley Neutral Mill Irons, per ton..	12.00	12.00
Mahoning and Shenango Valley Red Short Mills, per ton..	12.25	12.25

**Nails.**—The closing down of mills has resulted in strengthening the market a trifle. Dealers quote Steel Wire Nails at \$1.50 @ \$1.55 per keg from stock and \$1.35 @ \$1.40 in carload lots.

**Old Rails.**—Old Americans can be had in almost any quantity desired at \$18 @ \$18.50.

**Scrap.**—The market is lifeless, with no changes reported in prices.

**Wire.**—Business is not very brisk. Galvanized is quoted at \$2.30 @ \$2.32 and Plain at 1.90¢ @ 1.95¢, carload lots, Cleveland.

**Muck Bars.**—Dealers report business very slack, and quote \$22.75 @ \$23 as a local figure, delivered at buyers' mill.

At Pittsburgh this week a hearing was had on the exceptions filed to the report of the Master in the case of I. W. Frank and others against the Lewis Foundry & Machine Company, Limited. The suit was brought by certain of the stockholders to secure a dissolution of the company, alleging mismanagement on the part of J. L. Lewis, the president of the concern. The Master in his report found that the original articles of the association were defective and also a lack of harmony rendered a dissolu-

tion advisable, although the concern was making money. On the part of the defendant it was contended that the best evidence that he had not mismanaged the affairs was that the partnership had made large profits. The limited partnership was formed in 1881, and in 1892 the surplus was \$214,000 and dividends of almost 100 per cent. had been paid. The Court has not yet rendered a decision in the case.

## Financial.

On the whole, the money situation has improved somewhat during the past week, although there have been many disturbing elements. Call loans on Stock Exchange collateral have varied between 4½ % and 8 %, and a somewhat better feeling has developed in time loans. Commercial paper, however, remains dull, and it has not yet felt the effect of any improvement. There have been some withdrawals of certificates, but, on the other hand, nearly equivalent amounts have been issued, leaving the total amount of Clearing House certificates outstanding practically the same. Close upon \$1,500,000 in gold are afloat from Europe, and small amounts have come in during the week from the West Indies. There have been considerable shipments of silver abroad, but no purchases on that account on the part of the Treasury. Silver bullion certificates have sold in small amounts at 72¢, bar silver closing in England at 33½d.

With the exception of Friday, when a rally took place, the course of the Stock Exchange markets was downward, Tuesday showing an exceptional record in this respect. There have been evidences of a good deal of liquidation in London, and the latest impulses toward lower figures have come from that money center. Wall street was treated to a new sensation on Tuesday, the melting away of quotations under a very moderate pressure to sell taking place without any of the excitement which usually would have accompanied so great a decline.

The developments of the past week show how the purchasing power has been impaired and how little confidence there exists in an early and sustained improvement in values. While there may have been some picking up of stocks by bargain hunters, the chief demand has come from operators who have seized the opportunity to secure their profits on the short side. The noteworthy feature of the decline was that it took place largely in some of the gilt dividend paying securities, like New York Central and the Pennsylvania. Since Thursday the following changes have taken place, the second series being the closing figures for Tuesday:

Atchison, T. & S. Fe.....	20½ to	17½
Am. Sugar Refining Com.....	81¼ to	75½
Balt. & Ohio.....	68 to	62½
Delaware & Hudson.....	118 to	114½
Del., Lack. & W.....	139½ to	139½
General Electric.....	64¼ to	55¾
Illinois Central.....	89 to	86
Erie.....	14½ to	15½
Lake Shore.....	117 to	113
Louisville & Nashville.....	58½ to	50½
Manhattan.....	118 to	113½
New Jersey Central.....	89 to	95
New York Central.....	100¼ to	95
Philadelphia & Reading.....	14¾ to	13¾
Chic., Bur. & Q.....	83½ to	76
St. Paul, Common.....	60¾ to	53¾
Tennessee Coal & Iron.....	14 to	12¼
Union Pacific.....	21½ to	18½
Western Union.....	78¾ to	75¾

Wednesday brought some violent fluctuations in the morning, leaving

some stocks even lower than noted above.

The bond market has been dull during the week and has sympathized in its weakness with the stock market. Sterling exchange was easy during the greater part of the week, but toward the end the selling of stocks on London account led to a moderate advance in both the posted and actual rates, the market, however, closing dull at \$4.82½ for long bills, \$4.84½ for sight drafts, and \$4.85½ for cable transfers, actual rates.

Domestic exchange on New York: Boston—30 @ 40 cents discount for cash; checks, 10 @ 15 cents discount. Charleston—Buying, par; selling, ½ premium. Savannah—Buying, ½ discount; selling, par to ½ premium. New Orleans—Bank, par; commercial, 100 discount. San Francisco—Sight, 22½; telegraphic, 30. St. Louis—\$1.50 discount asked. Chicago—\$1 @ \$1.25 discount.

## Metal Market.

**Pig Tin.**—Speculative dealings during the past week involve a total of upward of 1000 tons, the greater portion on contracts for July and August delivery in settlement of old trades and against privileges. There has been hardly any distinctly new speculative business and very little manifestation of tendency to venture in that direction. Most accounts go to show that purchases by distributors and consumers have been on a moderate scale and that deliveries on prior sales not only supply the present needs of consumers, but leave a considerable surplus that is rather burdensome in view of the general financial situation. However, there is reason for the statement that, with proper allowance for the curtailment of consumption due to usual summer season dullness and extremely adverse financial conditions, to say nothing of the deliveries made since the 1st inst. on old contracts, stocks in first hands have been cut down considerably, making the statistical position much stronger than it was at the beginning of the month. However, the various complications have resulted in a lower level of prices. Thus current month delivery sold at from 19.50¢ down to 18.95¢, and more distant futures depreciated quite as much, making altogether a rather discouraging outcome thus far of the McKinley "boom" that, during its height, carried the price for August delivery very close to 22¢ per lb several months ago. Since the duty went into effect only 942 slabs have been received at this port. At last accounts there was nothing afloat for America. This admits of no other deduction than that the supply in first hands has been reduced 600 to 700 tons since the beginning of the month, which strengthens the position of the market to some extent in the face of comparatively small "short" interest. Wednesday's negotiation brought out sales of August delivery to the extent of 35 tons at 19.17½¢ @ 19.20¢ July went to 19.05¢ bid, 19.10¢ asked, and September to 19.15¢ bid, 19.25¢ asked.

**Copper.**—The monetary situation still operates as a formidable obstruction in the way of improvement in the market for this metal. It curtails the home trade outlet and affects the foreign market perceptibly. In fact, the agreement of producers is offset in a great measure by the scarcity of funds and consequent economy on the part of Copper consumers generally. As a popular

quotation for Lake Superior Ingot, 10½¢ remains in force, but it is no secret that purchases can be made in some quarters at ½¢ @ ¼¢ less. In other words, 10½¢ appears to be nearer to the true market value. On Electrolytic Copper 10½¢ is generally quoted, but that is, undoubtedly, an extremely high rate where actual business is involved. Common Casting Copper has been selling in a moderate way at 9½¢ @ 10¢, according to brand and quantity.

The monthly production of Copper in the United States since July, 1892, has been as follows, the first column giving the aggregate returns from the reporting mines, which include the principal lake, Montana and Arizona producers; the second being the metal from pyrites and from a number of smaller outside sources, being estimated:

#### American Product.

	Reporting mines. Gross tons.	Outside sources. Gross tons.	Total. Gross tons.
1892.			
July .....	9,294	924	10,218
August .....	10,807	870	11,677
September .....	9,710	994	10,704
October .....	9,688	1,289	10,957
November .....	9,888	1,036	10,924
December .....	9,372	1,174	11,046
Total six months .....	59,239	6,277	65,526
1893.			
January .....	9,187	989	10,176
February .....	8,213	1,042	9,255
March .....	9,065	1,321	10,386
April .....	11,775	1,042	12,817
May .....	12,706	1,042	13,748
June .....	11,524	1,042	12,566
Total six months .....	62,470	6,478	68,958

The product of the foreign reporting mines was as follows:

#### Foreign Reporting Mines.

	Gross tons.
1892.	
July .....	6,358
August .....	6,889
September .....	5,478
October .....	6,476
November .....	6,789
December .....	7,686
Total six months .....	39,655
1893.	
January .....	5,736
February .....	6,762
March .....	6,896
April .....	6,913
May .....	6,806
June .....	7,935
Total six months .....	41,045

The exports of fine Copper from the United States were as follows:

#### United States Exports.

	Gross tons.
1892.	
July .....	3,450
August .....	1,545
September .....	1,458
October .....	3,144
November .....	3,897
December .....	4,486
Total six months .....	17,980
1893.	
January .....	3,171
February .....	1,515
March .....	2,334
April .....	3,450
May .....	4,482
June .....	5,109
Total six months .....	20,361

**Pig Lead.**—The market has weakened somewhat since the date of our last review and is at present in an uncertain shape, pending the solution of problems incidental to the silver agitation. A few sales have been made at 3.60¢ for early and 3.65¢ for more distant future shipment. Subsequently some lots were parted with at 3.55¢, and offerings at 3.60¢ were free enough to indicate that buyers have the upper hand to a great extent where deals involving more than single carloads are concerned.

**Spelter.**—There has been an uninterrupted downward turn in prices, with

good Western brands selling in car-load lots at from 4.15¢ down to 4¢, delivered, near future shipments, and fairly free of offering at near the bottom figures at the close. Narrow outlet for the metal and a change for the better in the complexion of affairs in the Western coal mining regions, together with liberal production, have helped the decline.

**Antimony.**—While not unusually large the arrivals have been sufficient to add to the accumulation here and prices are easy in consequence. Ordinary jobbing lots out of store may be secured at 9½¢ @ 9¼¢ for Hallett's, 10½¢ @ 10¼¢ for L X, and 10½¢ @ 10¼¢ for Cookson's, on the spot.

**Tin Plate.**—Apart from ordinary small sales of spot stock and occasional orders for special sizes for near future delivery, there has been hardly any business. The demand is quite as slow as it was at the beginning of the week, and, with liberal stock and good assortment, prices continue rather weak all along the line. Spot quotations are as follows: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., \$5.40; Bessemer full weight, \$5.30; light weights, \$5 @ \$5.02½ for 100 lb, \$4.90 for 95 lb, \$4.85 for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60; Siemens Steel, IC basis, \$5.65; IX basis, \$6.85. Charcoals—Melyn grade, IC, \$6.35 @ \$6.37½; Crosses, \$8; Allaway grade, IC, \$5.60; Crosses, \$6.80; Grange grade, IC, \$5.70; Crosses, \$6.85. Charcoal Ternes—Worcester, 14 x 20, \$5.70; do., 20 x 28, \$11.35; M. F., 14 x 20, \$7.25; do., 20 x 28, \$14.50; Dean grade, 14 x 20, \$5.30 @ \$5.37½; do., 20 x 28, \$10.50 @ \$10.60; D. R. D. grade, 14 x 20, \$5.10 @ \$5.15; do., 20 x 28, \$10.20; Alyn, 14 x 20, \$5.32½ @ \$5.35; do., 20 x 28, \$10.40; Wasters—S. T. P. grade, 14 x 20, \$4.87½; do., 20 x 28, \$9.25; Abercarne grade, 14 x 20, \$4.87½; do., 20 x 28, \$9.20.

## New York.

Office of *The Iron Age*, 96-102 Reade street, {  
NEW YORK, July 19, 1893.

**Pig Iron.**—The market is lifeless, and is only stirred occasionally by reports of concessions under fairly numerous special circumstances. Buyers are covering only immediate requirements, and these call for exceedingly quick delivery. We quote Northern brands at \$14.50 @ \$15 for No. 1; \$13.75 @ \$14.50 for No. 2; \$12.25 @ \$12.50 for Gray Forge, at tidewater. Southern Iron, same delivery, \$13.75 @ \$14.50 for No. 1; \$12.50 @ \$13.50 for No. 2; \$12 @ \$12.25 for No. 3; \$12.25 @ \$12.50 for No. 2 Soft, and \$12.75 @ \$13.25 for No. 1 So t. Gray Forge remains \$11.75 @ \$12.50.

**Spiegeleisen and Ferromanganese.**—There are no inquiries and no sales. Ferromanganese may be nominally quoted at \$56 @ \$56.50.

**Billets and Rods.**—There is no demand, and the majority of the Eastern mills making Soft Steel Billets are practically idle. We quote, nominally: Domestic Billets, \$23.00 @ \$24, an foreign Billets \$28.25 @ \$28.50, tidewater; domestic Wire Rods, \$30.50 @ \$31 and foreign Rods, \$39.75 @ \$40.

**Steel Rails.**—No business of any consequence is reported. We quote \$29 at mill or tidewater for standard sections.

**Track Material.**—We quote: Spikes, 1.80¢ @ 1.90¢; Fish Plates, 1.45¢ @ 1.60¢; Track Bolts, Square Nuts, 2.30¢ @ 2.40¢, and Hexagon Nuts, 2.40¢ @ 2.50¢, delivered.

**Manufactured Iron and Steel.**—There have been no transactions worthy of note nor any great changes in prices. We quote: Beams up to 15-inch, 1.85¢ @ 2¢; 20-inch, 2.10¢ @ 2.25¢, for round lots; Angles, 1.75¢ @ 1.90¢; Universal Mill Plates, 1.75¢ @ 1.90¢; Tees, 2¢ @ 2.15¢; Channels, 1.85¢ @ 2¢, on dock. Steel Plates are 1.70¢ @ 1.90¢ for Tank; 1.95¢ @ 2.10¢ for Shell; 2¢ @ 2.15¢ for Flange, and 2.50¢ @ 2.80¢ for Fire Box, on dock; Refined Bars are 1.60¢ @ 1.9¢, on dock, and Common 1.45¢ @ 1.60¢; Soft Steel Bars are 1.50¢ @ 1.70¢; Scrap Axles are quotable at 1.85¢ @ 2.10¢, delivered; Steel Axles, 1.80¢ @ 2¢, and Links and Pins, 1.80¢ @ 2.10¢; Steel Hoops, 1.75¢ @ 1.90¢, delivered; Cotton Ties, 80¢ @ 85¢ per bundle, at mill.

**Old Material.**—We quote Old Iron Rails at about \$15 @ \$15.50; Old Steel Rails, \$12.50 @ \$13; No. 1 Wrought Scrap Iron at \$15 @ \$15.50, and Car Wheels at \$11.50 @ \$12.

## British Iron and Metal Markets.

[Special Cable Dispatch to *The Iron Age*.]

LONDON, WEDNESDAY, July 19, 1893.

The Pig-Tin market has been quiet, with only slight movement in price. The appearance of a few outside speculative orders, along with improvement in price of silver caused a slight advance, but receiving little support the advance was lost. Operators are extremely cautious about handling three months futures, owing to belief that shipments from the Straits will continue heavy. Shipments thence during the first half of July were 1575 tons. Stocks in warehouses aggregate about 1120 tons. At the close Straits quoted at £82 for prompt delivery and £81.15 for three months' futures.

Copper has been rather weak. Unfavorable American advices and unsettled financial situation caused a further decline of 10 shillings. Lowness of prices and hopes that the depression is over induced some outside buying, but the market has since become flat. Dealers seem inclined to restrict transactions until affairs are more settled and the intentions of American consumers clearer. Chili charters during the first half of July were 1000 tons. Spot stocks decreased 250 tons and visible supply 203 tons during the fortnight. In view of this showing some operators consider that prices have been unduly depressed. At the close the market was dull with Merchant Bars quoted at £42. 12/6 for prompt and £43 for future delivery, and best selected English at £48.

Pig Lead prices have reacted to £9. 15 for Soft Spanish, and the market is now very flat. Consumers are holding aloof, owing to reports that there

are large stocks in Spain ready for shipment.

Spelter is weaker at £17. 12/6 for ordinary Silesian, and selling in moderate quantities only.

In Tin Plate there has been a moderate demand and the market shows no improvement. The quarterly meetings were very quiet and the outlook for American business considered gloomy. There was some increase in sales of cokes the past few days and better inquiry from Russia. Business in Black Plate is better. Liverpool prices are as follows:

IC Charcoal, Alloway grade.....13/0 @ 13/6  
IC Bessemer Steel, Coke finish. ....12/0 @ ...  
IC Siemens .....12/3 @ ...  
IC Coke, B. V. grade, 14 x 20.....11/9 @ 12/  
Charcoal Terne, Dean grade.....11/9 @ 12/

Steel Rails are easier, and some makers now offer heavy sections at £3. 16/3. Other Steel and Iron is generally slow. Last sales of warrants were at 41/7 @ 41/8 for Scotch, 35/ for Cleveland, and 44/10½ Hematite.

#### Bouton Foundry Company Assigns

The Bouton Foundry company, operating an extensive plant at Thirty-ninth street and Union avenue, Chicago, made an assignment for the benefit of creditors on the 15th inst. The Equitable Trust company were named as assignee. The plant is one of the most extensive of its kind in the city and covers an entire block. The company own the building and lease the site. The difficulty in making collections is given as the reason for the failure. The business in the manufacture of architectural iron-work and gas plant specialties until recently was quite prosperous.

The company were organized ten years ago with a capital stock of \$166,500. Carl E. Bradley is president and Farlo W. Martin secretary and treasurer. The assignee's inventory was filed at the time the assignment was made. It shows that the assets of the insolvent concern consist of the foundry plant worth about \$75,000 and outstanding accounts amounting to \$100,000. The liabilities consist mostly of notes coming due in a few days and notes already due to the amount of \$150,000, with accounts against the company for \$50,000. The largest creditors are as follows:

Douglas Furnace Company, Sharpsville, Pa., \$30,000; National Bank of New York, \$5000; Atlas National Bank of Chicago, \$4000; the Continental Bolt & Iron Works, Chicago, \$3000; Buffalo Mining Company, Milwaukee, \$26,000; Forsythe, Hyde & Co., Chicago, \$7000.

The attorneys for the assignee stated that the failure was precipitated by an inability on the part of the company to make payments on various notes held by banks in Chicago and other cities, which did not care to have the paper renewed on account of the uncertain condition of the money market.

The damming of the Mojave River at Victor, creating an artificial lake nine miles long, three miles wide, and 130 feet in depth, to provide water sufficient to irrigate 200,000 acres of arid land, is a project on foot in San Bernardino County, Cal.

## Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., July 18, 1893.

The Treasury Department is perfecting the schedules proposed for submission to Congress for reference to the Committee on Ways and Means. The theory on which the revision is being conducted is an enlarged free list, the restoration of sugar, tea and coffee to the dutiable list, and a general cut upon all articles.

The metal schedule seems to be the objective point of the free-trade tendencies of the present managers of prospective economic legislation. That iron ore will go on the free list is certain. The Treasury experts are now seriously figuring up the statistics of pig iron and blooms with a view to putting both these articles on the free list. Their figuring appears to have no reference to the interests of these industries, the wage workers or the country at large, but simply relates to revenue.

If the Government is compelled to have the benefit of the revenue in order to meet obligations which cannot be avoided, it is proposed to place a reduced rate of duty on both articles.

A low rate of duty is expected to stimulate importations, thereby affording larger revenue. The object in restoring sugar, tea and coffee to the dutiable list is to add to the revenue from these articles of foreign growth, in order to make up the loss of revenue from certain articles of American labor, like absolute raw materials, and American industry, like pig iron blooms, &c, being placed on the free list.

The stories about Mr. Springer being superseded in the Chairmanship of Ways and Means by a person like Wilson of West Virginia, who is claimed to be more in line with the administration idea of tariff reform, are not sustained by the relations which exist between Mr. Springer and the Treasury Department in making up the statistics and schedules which will be used in the compilation of the committee's bill.

Mr. Springer will be here next week and will bring with him the outline of his bill.

The scheme is to have the bill ready to introduce for reference as soon as Congress meets and the Committee on Ways and Means shall have been appointed.

They will then digest the measure into shape and hold it in readiness to report as soon as the opportunity offers for consideration without antagonizing the efforts to repeal the silver purchasing clause of the silver act of August, 1890.

The first steamer of the American whaleback type built in Great Britain under the "McDougall" patents has been launched by Wm. Doxford & Sons (limited) of Sunderland. The principal dimensions are 330 feet by 38 feet 2 inches by 26 feet, load draft 19 feet, and she is intended to carry 3500 tons. She is fitted with triple-expansion engines, the cylinders being 23 inches, 37 inches and 60 inches, with 42-inch stroke, and large single-ended boilers. The hull generally is of the whaleback design, and above this are erected seven towers, forming supports, on which are carried the winches, derricks, cabins, &c.

The first keel plates of the two 10,600-ton vessels of the American Line were laid at Cramps a few days since.

The shipyard numbers are 277 and 278, and they are the smallest of the five ships that the Cramps will build for the company. They will be 511 feet 8 inches long and have a breadth of beam of 63 feet and a depth of 40 feet. The keel of the battle ship "Iowa" will be laid about July 29.

## Trade Publications.

PRESSURE AND VACUUM GAUGES for all purposes, stationary, portable and marine pop safety valves and steam engines and boiler appliances in general, are described in all their manifold forms in a catalogue by the Star Brass Mfg. Company of Boston. Concerning the Star brass patent seamless drawn corrugated spring tube steam gauge, we take the following: "It is a well-known fact that for many years the steam gauge has occupied a prominent and important position in the field of safety appliances for recording and indicating steam or other pressures. From the time M. Bourdon invented the plain spring tube till the introduction of our corrugated spring tube, there has practically been no improvement in the construction of this part of the gauge. The ordinary Bourdon spring consists of a flattened bronze or brass tube formed into a circle, and in order to give the proper curvature, it is necessary to pass it through forming rolls. A little consideration of this method of manufacture will make clear the fact that by bending, the tube becomes radically disturbed in its particles, and its tendency to become straight reverts to serious detriment to the truth and accuracy of the gauge." The corrugated spring tube consists of a flattened tube formed with corrugations, parallel with its length, upon both the inner and outer surfaces. It is stated to be stronger, more elastic, and that it will not set under the maximum pressure indicated upon the dial.

J. W. PAXSON & Co. of Philadelphia issue a 40-page catalogue, pocket size, illustrating a line of foundry supplies and equipments. In addition to the regular line of steel lamps, bellows, annealed wire switch brushes, spraying bellows, molders' clamps, adjustable clamps, crucibles, shovels, mallets, rammers, buckets, barrows and other goods, the book contains many new articles, including a brass foundry drying stove, the Josef patent clamp, the Diamond snap flask, the Millett patent core oven, a sprue cutter, and the Tom Thumb wire straightener. The firm have also issued a 36-page catalogue, pocket size, of supplies for steel foundries. It is well illustrated and includes core compounds, anolium, separators, glue pots, sand and coal screens, crucibles, emery stones, flasks, shank and geared ladles and ladle bowls, blast gauges, sand sifters for hand and power, flexible metallic fillet, rapping plates and rumbler's, &c. The new articles illustrated in the book are the Economical foundry stove, facing sand sifter with double screens, improved sand and clay mixer, centrifugal sand disintegrator for mixing gravel, sand and other material and a patented adjustable flask pin.

THE UNION FOUNDRY & MACHINE COMPANY of Pittsburgh, Pa., have issued a gear list of machine molded gearing, winding drums, rope sheaves and fittings. It is stated in the introduction that "we group all allied gear, furnishing no more tabular matter than is necessary to determine any information sought." All gearing, winding drums and rope sheaves are molded by their improved four-headed universal molding machine, which is so constructed that the smallest pinion and the largest wheel can be made with perfect accuracy. We find, in a chapter headed A Practical Talk on Gearing a very clear and complete explanation of the system here pursued. The back of the catalogue contains several pages of perforated order sheets, which contain engravings of different kinds of gears and upon which are the necessary dimension lines. These should prove to be of great advantage, as they obviate, almost wholly, the liability of making mistakes.

# HARDWARE.

## Hardware Organizations and the Financial Situation.

IT IS GENERALLY CONCEDED that the present unsatisfactory condition of business is more or less directly caused by the policy of the Government in regard to the purchase and coinage of silver in accordance with the provisions of the Sherman law, the repeal of which will doubtless be considered at the approaching special session of Congress. That such repeal will be strenuously opposed cannot be doubted. The action which Congress will take in the premises will depend in a large measure upon the impression made upon it by the solid business interests of the country, and the expression by merchants and manufacturers of their convictions that the bill should be immediately repealed will have great influence with the law-makers at Washington.

In this connection every thinking man has a duty to perform in the dissemination of sound financial principles, the carrying into effect of which will tend to correct the mischiefs caused by legislation which has wrought so much havoc already and which threatens to be still more disastrous. Congressmen and Senators are influenced almost solely by the interests of their constituents, and in such a matter as this will give great weight to the judgment of responsible merchants and manufacturers.

The Hardware trade having certainly its full share of influence, from the character and standing of those who are identified with it, has, however, a further duty in this matter. Connected with the trade there are large and influential organizations, which at the present time are given an excellent opportunity of taking action which will express their views in regard to existing financial evils and the proper remedy. If the **HARDWARE CLUB OF NEW YORK**, comprising as it does in its membership persons who, as merchants and manufacturers, are known throughout the length and breadth of the country, following the example of the Chamber of Commerce

and the Hide and Leather Club, should recommend the immediate repeal of the Sherman bill, it could not fail to have a wide influence. Similar action taken by the **PHILADELPHIA HARDWARE MERCHANTS AND MANUFACTURERS' ASSOCIATION**, comprising as it does so many solid concerns of more than national reputation, would also have weight with the trade at large and the legislators at Washington. The **BOSTON IRON AND HARDWARE CLUB**, though recently formed, would fitly represent one of the important financial and business centers. If there could also be concerted action on the part of the **HEAVY HARDWARE JOBBERS' NATIONAL UNION**, the **MISSISSIPPI AND MISSOURI VALLEY HARDWARE ASSOCIATION** and the **SOUTHERN HARDWARE JOBBERS' ASSOCIATION** in favor of the repeal of the bill, such action would have no inconsiderable weight as the expression of the views of solid and influential business houses, some of which are located in parts of the country in which the bill was at first regarded with favor. The organizations which exist in Cleveland, Pittsburgh and other important cities, and the **NEW YORK STATE HARDWARE JOBBERS' ASSOCIATION**, and other similar organizations in different parts of the country, are also in position to do excellent work in this direction.

The taking of such action is a duty which each trade owes to itself and to the country at large. The Hardware trade certainly is in a favorable condition to move in this direction, having so many and so thoroughly representative organizations. How such action should be taken may be best determined by each association, whether it should be in a formal meeting with the adoption of suitable resolutions, or by the circulation of petitions among its members and among the trade outside, must be left to the decision of those who are in direction of the affairs of the different organizations. One thing, however, is plain—that such action should be taken at once. If the Hardware trade and the other trades should organize and work, the expression of their judgment could not fail to have influence at Washington.

## Condition of Trade.

THE PAST WEEK has been uneventful in Hardware circles, with few and unimportant changes in price. Trade, as expected at this season, is quiet and owing to the financial conditions is of smaller volume than usual. Retailers, as indicated in the reports given in our last issue, which are confirmed by others which the pressure on our columns will not permit us to publish, are feeling the effect of the financial stringency to a greater or less extent, some of them, however, having, up to the present time at least, a good volume of business. Collections, however, on the whole, are difficult. It is, as yet, too early to expect the opening of fall trade. Business is, to a large degree, limited to small orders for special requirements. Travelers generally are at home. Jobbers are wisely refraining from efforts to force business. It is also the vacation season and many are giving their attention to pleasure and recreation. Manufacturers generally, as reported in our last issue, are diminishing their production, working either on short time, or for the time being closing their works. The improved feeling in financial affairs is a matter for congratulation and it is hoped that before long the conditions will be favorable to a resumption of business in good volume.

### Chicago.

(By Telegraph.)

Hardware collections are still improving, but trade does not gain in volume. Jobbers state that they are now withdrawing their travelers, and some are cutting down their working force at home. Salesmen are told to take plenty of time to see the World's Fair. It is seen that under existing conditions it is useless to endeavor to force trade. Jobbers are scrutinizing credits very closely, and are often refusing to book orders, although desirous of making better sales. Manufacturers of Hardware are now making unusually low prices on some articles for spot cash. It is a great opportunity for those having ready money, but as usual, opportunities of this kind come when most people do not have cash to embrace them. The dullness is felt both in Shelf and Heavy Hardware, but the decline in business is not quite so great in Heavy Hardware, as



the small consuming manufacturers appear to be still driving ahead, and are purchasing material in reasonably good quantities.

#### St. Louis.

(By Telegraph.)

Jobbers complain regarding the limited number of orders they are receiving, and also say collections are anything but satisfactory. To show the condition of business it is only necessary to state that a local hardware jobbing house have called in nearly half of their force of traveling men, as the orders they are sending in did not warrant their keeping them on the road. Customers asking for credit have to show a pretty good record for paying their bills, else are likely to be refused. The July and August trade is always light, but this year will doubtless be less than usual on account of the financial condition of the country at large. Taking everything into consideration there is nothing in the situation to call for any enthusiasm and no great improvement is anticipated in the near future.

#### Cleveland.

THE W. BINGHAM COMPANY.—There is very little change since our last writing. Trade, though light, is very good for this season of the year, particularly when there is taken into consideration the fact that merchants are buying only what they absolutely need and are cutting their purchases closer than in former years. The sharpness with which jobbers have looked after their credits has undoubtedly had a good effect in inducing a conservative feeling among country dealers. Wire Nails are held firm at \$1.55. Builders' Hardware is in light demand except for city trade.

The contraction of business consequent upon the financial disturbance is lessening the demand for money, and the present stringency will doubtless soon be relieved; and, with a continuation of the present careful policy generally adopted, and with a large grain crop in view, there is a good prospect for a satisfactory business this fall.

#### Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade remains quiet and without any noticeable change since our last letter. Mail orders are frequent, and as a rule are confined to articles for immediate use.

The hot weather which has existed during the past week has had rather a depressing effect, and the midsummer dullness continues without any signs of marked improvement.

Quite a number of persons who are in various kinds of trade have availed themselves of the midsummer dullness, and are taking in the World's Fair. Employees, as a rule, are either on their vacations or else returned to give the remaining force the opportunity during the present month.

No doubt the present dullness in large manufacturing and mercantile

circles is due to the scarcity of funds and prevalent distrust which has existed, and is still existing, in the monetary conditions; and to-day a safe estimate would be that double the number of men are out of employment than we named in our article in *The Iron Age* of July 6. It is also a noticeable feature that several thousand men are about to resume work at a decline in their wages of from 8 to 15 per cent.

The liberality with which the New York and Philadelphia banks have sent their currency to Western cities so lavishly when called upon is now showing rather unfortunate results. The scarcity of currency in these two cities is acting greatly to the disadvantage of merchants, who send their checks from one city to another in payment of current accounts; and, in the mad rush for currency some of the bank officials appear to have lost their better judgment; and some of the financial articles recently printed editorially in our daily papers have doubtless been written in order to restore confidence, and do not properly represent the present unfavorable monetary conditions in either New York or Philadelphia, where not less than \$25,000,000 of Clearing House certificates are now afloat, with currency scarce and almost unobtainable.

We think the wording of the President's message, in calling Congress together for an extra session, a portion of which wording we quoted in *The Iron Age* in our article dated July 6, was not calculated to allay the present uncertain feeling, especially throughout the interior, where the monetary stringency had not yet reached, and it was not all in keeping with the reporter's interview of a few weeks ago, when he said all that was required was confidence.

The assumption that Congress will repeal the purchasing clause of the so-called Sherman law immediately upon assembling, looks problematical. It is feared the division of feeling between members of the administration party will not favor the immediate repeal without some compensative substitute looking toward free coinage, and it is well known that to avoid free coinage at the present parity of the legal ratio between gold and silver the present Sherman law was substituted. It is also well known that Mr. Sherman himself was the first man to advocate its repeal, in his speech at the Academy of Music, Philadelphia, in 1892. It was a temporary expediency to avoid what many silver men will now make, it is feared, a renewed effort upon.

We must bear in mind that members of Congress, as a rule, are not business men, but men of vagaries, and care but little for the industrial and mercantile interests of the country.

Collections are far behind the average, and far behind what should be expected at this date, when spring invoices are all due. It looks very much as if, in many instances, persons are taking advantage of the present mone-

tary stringency existing in our large cities, and are holding back remittances rather than making an effort to liquidate their bills.

#### Omaha.

LEE-CLARKE-ANDRESEN HARDWARE COMPANY.—The actual business situation as concerns Omaha has not changed very materially since our last report. Business still continues of very fair proportions. Farmers are all busy in the harvest field, consequently July is never expected to show a very heavy volume of traffic. Jobbers, as a rule, are following the general conservative policy adopted some time since and are not attempting to make any great flourish in business, but take what comes in a natural way and wait for the fall business to commence. With a splendid corn crop in sight there is every reason for confidence in the future of this section though the present condition of business may not be entirely satisfactory. It is conceded that the wheat crop is considerably below an average, but it is corn and the products of corn, cattle and hogs that create the wealth of this State. Shrinkage in the volume of business and the stringency of the money market have during the past few months strewn the shores of the financial world with the wreckage of many promising business enterprises. Nebraska, however, has thus far withstood the financial storm much better than any other Western State and with her boundless resources it is difficult to conceive how it could be otherwise.

#### Boston.

BIGELOW & DOWSE.—The month of July is gradually assuming its summer quiet. Near and in the large cities the retailers are complaining of dull trade. In the country everything seems prosperous and very few are materially affected by the present lack of confidence and the stringency in the money market. Remittances from the country trade are not very much behind, showing that the dealers are in good shape financially. In the next two months, as well as in the month of July, New England reaps a large return from the summer residents, who come from all over the country to enjoy its many pleasant and comfortable summer resorts. Indirectly all are benefited by this large addition. At present there is nothing serious in the present situation and many are prophesying better conditions in the near future.

#### San Francisco.

HUNTINGTON HOPKINS COMPANY.—This is harvest time and trade is extremely dull, the interior merchants buying very little on account of it being almost impossible to make collections at present. Not only do they wish to decrease their own accounts, but those of their customers as well. The farmers are beginning to haul their wheat to warehouses, and, although the price is very low, ad-



vances will be made, and as a consequence money will be easier in the future.

#### New Orleans.

A. BALDWIN & Co.—Business still remains quiet in this section, although the outlook is brightening somewhat, owing to the favorable condition of the staple crops, and a much easier feeling is prevalent. We are preparing for the fall trade, which we think will be up to former years. Trade in some sections of the cotton district is almost at a standstill, with the exception of the State of Texas, from which we are deriving about our usual business at this season. In the sugar sections business shows a slight improvement over last season. Most of the merchants are simply buying for their present wants and do not seem to be putting in any stock orders. Notwithstanding the low price of some of the leading staples, such as Wire and Nails, there is considerable scarcity of orders for these products. The builders' line is about the only redeeming feature of the situation, the demand for goods in this line showing a steady improvement.

#### Portland, Ore.

CORBETT, FAILING & ROBERTSON.—Now that the first six months of the year have passed and the results been reviewed, we will be well satisfied if the last half will show up as well. While the volume of sales show a falling off, and profits have been cut to a closer margin, there have been fewer losses than heretofore. The retail trade generally has placed but small orders, and made more of an effort to meet maturing bills.

The jobbing trade here have full stocks, having shipped same last fall and winter via Cape Horn, two ships having arrived this week.

We look for but little relief in money matters until after harvest. Our fall business will depend entirely on how the crops mature and what prices they bring. Everything is late, owing to our backward spring and no summer as yet.

#### Louisville.

W. B. BELKNAP & Co.—One hesitates and dislikes to add to the quantity of unpleasant literature that is afloat nowadays concerning financial and general market conditions; but if Mr. Tapley's notion of what is creditable is correct—viz., to be jolly under the most trying circumstances—we have an opportunity to make a name for ourselves right now. In other words, it takes a good deal of philosophic and politico-economical reasoning to persuade ourselves that we are happy; and if we can arrive at that conclusion, we want it duly recognized. Our troubles, unfortunately, are not all of our own individually, but our sympathies are drawn upon more largely than ever by the friends about us engaged in manufacturing, and who have to meet an inexorable weekly pay roll.

The repeated promises of recovery and subsequent slumps have rather shaken our faith in glowing newspaper declarations of the crisis having passed (or words to that effect), for we find that the only individual who denies that money is tight is the man who does not want to borrow.

Many of the rolling mills in this section are closed down and the difficulty in filling special orders is marked, and is likely to become more so, as there is no temptation for any of the larger concerns to start up, when promissory notes constitute the main form of currency and are available only to a limited extent in the banks.

The safety-vault companies claim to have done a good business in the letting of boxes, so it is fair to presume that quite a quantity of actual cash has gone into these convenient receptacles, and just that much has been taken out of circulation or out of bank deposits, and so is unavailable for lending purposes.

Meanwhile the crops continue to ripen, and all except wheat seem to be bringing fair prices. The new wheat is selling here at 50 cents, we understand. There is no extravagant profit in this, when the farmer pays 10 cents for thrashing and only gets, as he often does hereabouts, only 15 or 20 bushels to the acre. But, as we intimate above, other farm products are in fair request and not so depressed.

If people could have absolute faith that Congress would give us sound money legislation the situation would begin to mend within 24 hours, but with the rabid utterances of the silver men in Colorado, the unreasonable clamoring of the Populists in Iowa and Kansas and the dubious Senate, anyhow, their feeling of uncertainty, the return of confidence is to a certain extent prevented. Order business, however, is improving, specifications for immediate wants are coming in more freely, and we continue to be interested, as we said before, in the problem as to how crops are going to be moved to market without the usual supply of money and with an unmeasurably contracted credit.

#### Baltimore.

CARLIN & FULTON.—The conditions of trade are very much the same as when we last wrote. July has always been about the dullest month of the year and there is nothing at present to take from it that distinction.

From conversations with salesmen who have been traveling throughout our Southern market, we can see no reason why business should not be decidedly active after August 1, were there less talk about finances and more confidence felt as to the values of assets. The crops throughout the entire country are generally good, and with the exception of wheat the prices have been fairly remunerative; the average indebtedness of the individual consumer is no doubt less than it has ever been and there is no surplus of stock in the hands of any one. But it has become the fashion for every one,

whether in business or not, to discuss the financial situation and complain of the lack of bank accommodations, in many cases where discounts have never been granted.

The currency question is, without doubt, a very grave one, but the incessant talk of dull trade has become epidemic and aggravates the disease instead of curing it. There is no doubt that in nine cases out of ten a comparison of the receipts from collections for the last six months with those of a year ago will show that in proportion to the amount of business done the trade has paid very nearly as well, and that in the Hardware business the basis for credit is as good as it ever has been.

We see but little change in prices, for they have no doubt reached bottom long ago and rather than have further reductions manufacturers will prefer to temporarily shut down and curtail production.

#### St. Paul.

FARWELL, OZMUN, KIRK & Co.—Business in all lines is now slow. We are approaching harvest, which is always a dull time, and, besides, merchants are desirous, even more than usual, to see the outcome of the crop.

Trade will be light for the next thirty days. The situation then will depend on the general financial condition and still more on the shape in which the crops show up.

Jobbers will not take large chances. The present condition of the crops is, on the whole, fully up to fair, with the prospect of being better, but there will not be a large crop of wheat. With favorable weather it is to be hoped the quality will be high.

Wool is very low and sheep sections are depressed. Collections are fairly up to the mark of 1892, and they will be worked very closely for the balance of the year.

### Notes on Prices.

Cut Nails.—Many of the mills are shut down for repairs and in order to avoid an accumulation of stock. The volume of business is small and transactions are limited for the most part to small lots which are required for early use. There is an entire absence of speculative buying. Quotations remain on a basis of \$1.05 for car load lots at mill, a figure which is slightly shaded in special cases. Iron Nails are obtainable at a concession of 2 or 3 cents from the above figure. Small lots from store in New York are quoted at \$1.30 @ \$1.35.

Chicago, by Telegraph.—Although the Cut-Steel Nail factories are shut down, as far as can be learned the market does not appear to be in the least affected. Orders are very slow about coming in, and, when received, call for only a car-load or so at a time. Inquiries are extremely light, and there is no indication as yet of any improvement in this branch. Factory prices are continued at \$1.20 @ \$1.25 Chicago, while small

lots from stock are selling at \$1.30 regular and \$1.25 for quantity.

**Wire Nails.**—There have been no important developments in the Wire-Nail market during the past week. Quotations remain on a basis of \$1.35 for carload lots at mill. Manufacturers are not endeavoring to force sales and are adhering pretty closely to the above figure. It is understood, however, that it has in some cases been shaded.

*Chicago, by Telegraph.*—Manufacturers are doing a carload business almost exclusively. Jobbers have stocked up well, and it will be some time before they are again in the market to renew their orders. The closing of the Wire-Nail factories is having increasing effect in breaking the stocks of manufacturers, and more of them are reported to be buying from each other in order to make up assortments. Prices have not stiffened, but are still quoted on the basis of \$1.45, Chicago, for factory lots. Small lots from stock are selling at \$1.60, and quantities at \$1.55.

**Barb Wire.**—The Barb-Wire market is sluggish and unchanged. The volume of business is small and prices are surprisingly well maintained. We continue to quote \$2.45 to \$2.50 for carload lots of Four-Point Galvanized at mill. Small lots from store are held at about the usual advance.

*Chicago, by Telegraph.*—Business is extremely light from factory and from jobber. Prices have been reduced, the consolidated Steel & Wire Company having issued a new card on the Baker Perfect Wire, naming carload lots Painted, \$2.20, and Galvanized, \$2.60, usual terms, 60 days, or 2 per cent. discount for cash; Annealed Staples, carloads, \$2.20 for Painted, and \$2.60 for Galvanized; Polished, 10 cents per 100 advance. Ordinary Standard Wire is quoted at \$2.10 for Painted, and \$2.50 for Galvanized, but concessions are made to the best trade. Small lots from stock are still quoted by jobbers at the old rate of \$2.30 for Painted, and \$2.70 for Galvanized, but there is almost nothing moving.

**L. F. C. Lemon Squeezer.**—Landers, Frary & Clark, New Britain, Conn., and 298 Broadway, New York, are manufacturing this article, a description of which is given among our novelties. The Squeezer is sold to the trade at \$2 50 per dozen net.

**Horse Nails.**—The Horse-Nail market is in a better condition than for some time, and the leading manufacturers have reached an understanding in accordance with which it is thought that prices will be much more regularly maintained at somewhat advanced quotations.

**The Electric Vise.**—This Vise, which is manufactured by the Capital Machine Tool Company, Weedsport, N. Y., was described in a recent issue. It is sold to the trade from the following list,

which represents only the sizes which are now ready, the list being subject to a discount of 20 per cent.

*Machinists' Swivel Bottom Iron Workers' Vise.*

No.	Weight, about	Opens.	Length of Jaw.	Price Each.
14	31 lbs.	4 in.	3½ in.	\$8.50
15	45 "	5 "	3¾ "	9.75
16	68 "	6 "	4¾ "	13.25
17	112 "	7 "	5½ "	21.75

*Machinists' Parallel Iron Workers' Vise.*

No.	Weight, about.	Opens.	Length of Jaw.	Price Each.
4	26 lbs.	4 in.	3½ in.	\$7.00
5	38 "	5 "	3¾ "	8.25
6	60 "	6 "	4¾ "	11.00
7	100 "	7 "	5½ "	18.00

**Wringers.**—We give below revised prices on Wringers, issued under date July 1 by American Wringer Company, 99 Chambers street, New York. For the convenience of the trade, changes are indicated in full-face type. Most of these, it will be observed, are in the way of reduction, though in some instances prices have been advanced. Terms, 60 days, or 2 per cent. discount for cash in ten days:

*Iron Frame Wringers.*

Name.	No.	Size of Rolls.	Price per doz.
Daisy.....	2	10 x 1½	\$16.00
".....	3	11 x 1½	20.00
".....	4	12 x 1½	24.00
Handy.....	2	10 x 1½	16.00
".....	3	11 x 1½	20.00
".....	4	12 x 1½	24.00
The A. W. Co.	2	10 x 1½	17.00
".....	3	11 x 1½	21.00
".....	4	12 x 1½	25.00
".....	5	14 x 1½	34.00
".....	6	16 x 2	43.00
Magic.....	2	10 x 1½	21.00
".....	3	11 x 1½	25.00
".....	4	12 x 1½	29.00
Sherman.....	4	12 x 2	72.00
".....	5	14 x 2	96.00
Eureka.....	2	10 x 1½	19.00
".....	3	11 x 1½	23.00
".....	4	12 x 1½	27.00
".....	5	14 x 1½	36.00
".....	6	16 x 2	45.00
Superior.....	2	10 x 1½	18.00
".....	3	11 x 1½	22.00
".....	4	12 x 1½	26.00
".....	5	14 x 1½	35.00
".....	6	16 x 2	44.00
Superior, with Relief Screws.	2	10 x 1½	20.00
".....	3	11 x 1½	24.00
".....	4	12 x 1½	28.00
".....	5	14 x 1½	37.00
".....	6	16 x 2	46.00

*Wood Frame Wringers.*

Rival.....	10	10 x 1½	\$18.00
".....	11	11 x 1½	22.00
".....	12	12 x 1½	26.00
Household.....	10	10 x 1½	18.00
".....	11	11 x 1½	22.00
".....	12	12 x 1½	26.00
Novelty.....	10	10 x 1½	20.00
".....	11	11 x 1½	25.00
".....	12	12 x 1½	30.00
".....	20	10 x 2	30.00
".....	30	11 x 2	39.00
".....	40	12 x 2	48.00
".....	50	14 x 2	66.00
".....	2	10 x 1½	20.00
".....	3	11 x 1½	25.00
".....	4	12 x 1½	30.00
".....	22	10 x 2	30.00
".....	33	11 x 2	39.00
".....	44	12 x 2	48.00
".....	2½	10 x 1½	20.00
".....	3½	11 x 1½	25.00
".....	4½	12 x 1½	30.00
".....	22½	10 x 2	30.00
".....	33½	11 x 2	39.00
".....	44½	12 x 2	48.00
Imperial.....	XX2½	10 x 1½	19.00
".....	XX1½	11 x 1½	23.00
".....	XX1¼	12 x 1½	27.00
Volunteer.....	10	10 x 1½	20.00
".....	11	11 x 1½	25.00
".....	12	12 x 1½	30.00
Relief.....	110	10 x 1½	23.00
".....	111	11 x 1½	28.00

Name.	No.	Size of Rolls.	Price per doz.
Relief.....	112	12 x 1½	33.00
".....	120	10 x 2	33.00
".....	131	11 x 2	42.00
".....	140	12 x 2	51.00
Conqueror.....	2½	10 x 1½	24.00
".....	1½	11 x 1½	34.00
Excelsior.....	E	10 x 1½	29.00
".....	F	11 x 1½	34.00
".....	G	12 x 1½	39.00
".....	EE	10 x 2	39.00
".....	FF	11 x 2	48.00
".....	GG	12 x 2	57.00
".....	H	12 x 2½	92.00
".....	HH	14 x 2½	117.00
".....	JJ	16 x 3	240.00
".....	KK	18 x 3½	325.00
Universal.....	2½	10 x 1½	20.00
".....	2	10 x 1½	24.00
".....	1½	11 x 1½	25.00
".....	1½	11 x 1½	30.00
".....	1¾	12 x 1½	30.00
".....	1	12 x 2	48.00
".....	14	14 x 2	66.00
".....	A2½	10 x 1½	29.00
".....	B1½	11 x 1½	39.00
".....	Ci	12 x 2	57.00
".....	D8	14 x 2½	112.00
".....	BX1½	11 x 1½	42.00
".....	CX1	12 x 2	60.00
".....	DX8	14 x 2½	115.00
".....	8	14 x 2½	112.00
".....	12	14 x 3½	208.00
".....	18	17 x 2½	254.00
".....	22	17 x 3½	336.00
Empire.....	3	10 x 1½	32.00
".....	4	11 x 1½	38.00
".....	4½	11 x 1½	41.00
".....	5X	12 x 1½	44.00
".....	5	12 x 1½	47.00
".....	14X	14 x 1½	78.00
".....	11½	11 x 1½	56.00
".....	12½	12 x 1½	62.00
".....	16X	16 x 2	166.00
".....	14	14 x 2½	117.00
".....	16	16 x 2½	172.00
".....	14P	14 x 2½	153.00
".....	16P	16 x 2½	208.00
Empire.....	40	11 x 1½	47.00
".....	50	12 x 1½	53.00
".....	5A	13 x 2½	92.00
".....	14A	14 x 2½	117.00
Welcome.....	20	10 x 1½	24.00
".....	30	11 x 1½	29.00
".....	40	12 x 1½	34.00
".....	22	10 x 2	34.00
".....	33	11 x 2	43.00
".....	44	12 x 2	52.00
".....	20½	10 x 1½	24.00
".....	30½	11 x 1½	29.00
".....	40½	12 x 1½	34.00
".....	22½	10 x 2	34.00
".....	33½	11 x 2	43.00
".....	44½	12 x 2	52.00
".....	E	10 x 1½	33.00
".....	F	11 x 1½	38.00
".....	G	12 x 1½	43.00
".....	EE	10 x 2	43.00
".....	FF	11 x 2	52.00
".....	GG	12 x 2	61.00
Keystone.....	10	10 x 1½	20.00
".....	16	11 x 1½	25.00
".....	18	11 x 1½	30.00
".....	20	11 x 2	39.00
".....	22	12 x 1½	39.00
".....	24	12 x 2	48.00

Royal			
Keystone.....	A	10 x 1½	30.00
".....	B	11 x 1½	36.00
".....	C	12 x 2	46.00

*Bench Wringers.*

Household.....	A	10 x 1½	33.00
".....	B	11 x 1½	37.00
".....	C	12 x 1½	41.00
Excelsior.....	XA	10 x 1½	37.00
".....	XB	11 x 1½	42.00
".....	XC	12 x 1½	47.00
".....	XAA	10 x 2	47.00
".....	XBB	11 x 2	56.00
".....	XCC	12 x 2	65.00
Universal.....	AA2½	10 x 1½	37.00
".....	BB1½	11 x 1½	47.00
".....	CC1	12 x 2	65.00
Keystone.....	40	10 x 1½	50.00
Gem.....	4	10 x 1½	36.00
".....	8	11 x 1½	41.00
".....	16	12 x 1½	46.00
Welcome.....	XA	10 x 1½	41.00
".....	XB	11 x 1½	46.00
".....	XC	12 x 1½	51.00
".....	XAA	10 x 2	51.00
".....	XBB	11 x 2	60.00
".....	XCC	12 x 2	69.00
Empire.....	3	10 x 1½	47.00
".....	4	11 x 1½	53.00
".....	4½	11 x 1½	56.00
".....	5	12 x 1½	62.00

**Wine or Beverage Cooler.**—This article is being put on the market by

**Jack Chain.**—We give below a revised list of Brass and Iron Jack Chain, which has been adopted by the principal manufacturers of this line of goods. The list in its present form corrects the inequalities of the list adopted last March. No changes have been made in the prices of Safety Chain, but for the convenience of the trade we give its list with the others. The present list on these goods bears date July 10, and is as follows, subject to a discount of 60 per cent. :

ers make the point that the present slowness is not due so much to overproduction as to the fact that many projected enterprises have been suspended or retarded by the existing financial difficulties. Others, however, refer to the future in a less hopeful vein. The meeting of the Wage Committee of the Glass workers and the manufacturers which was announced to take place today has been deferred, and it is likely that it will not be held before next month. The demand for American Plate Glass is somewhat sluggish, although stocks are being perceptibly reduced. There is perhaps a slight improvement in the demand for imported Glass and collections are also said to be

**G**USTAV MARBURG of the importing house of Louis Marburg & Sons, Frankfort-on-Main Germany, has been in this country several weeks looking over the great exposition sample rooms at Chicago, returning to Europe July 18. While here, in addition to sight seeing, he visited many representative Hardware houses for the purpose of familiarizing himself with American methods of transacting business, calling, among others, on Simmons Hardware Company, St. Louis, and Hibbard Spencer, Bartlett & Co., Chicago. His house deals in American Hardware, Agricultural Tools, &c., two recent orders covering a carload of Handles and three carloads of Hay and other Forks.

The Coombs, Crosby & Eddy Company are maintaining a headquarters at Chicago, at present in charge of A. K. Brown, one of their trusted employees, in the Hotel Virginia, at Rush and Ohio streets. This is for the purpose of enertaining and looking after their foreign correspondents now visiting this country. C. K. Turner, for many years chief of the buying department of this house is also now in Chicago.

Norton & Son, 90 Wall street, N. Y., report the largest shipments of agricultural machinery ever sent forward to River Plate ports in their experience. Some conception of the business in general lines is afforded by the frequency with which steamers having a capacity of from 2500 to 3500 tons have been dispatched full, with no speculative cargo to fill up. The "Iona" left June 30; "Mount Lebanon," July 8, while the "Delcomyn" is billed for July 22, and the "Basuto," August 5. While the ports of call are Montevideo, Buenos Ayres and Rosario, through bills of lading are given to Colastine, Paysandu, Rio Grande, Bahia Blanca, &c. At present the bulk of cargo is made up of agricultural and industrial machinery, Binder Twine, Hay Forks, and Shovels, Refined and Lubricating Oils, Hard Wood Lumber, Barrel Shooks, with assortments of Hardware, Tools, &c., as a filling.

The agents of the American and African Steamship Line, direct for Cape Town, Port Elizabeth, East London, Mossel Bay, Port Natal, Delagoa Bay, and Mauritius, report a good and satisfactory amount of business. This service is monthly, the "Florida" having followed the "Worcester" June 25, while the "Bede," 3207 tons, will leave about July 25, and the "Constance," 4000 tons, August 25. Through bills of lading will be granted to Inhambane, Beira, Quillimane, Mozambique, &c.

Gregorio Sanchez, representing Chaves, Sanchez & Co., Cali-Cauca, Colombia, is now in this city on a visit to the country, and is making his headquarters with A. M. Capens Sons. 4

<i>Single Jack Chain.</i>											
	No... 5	6	7	8	9	10	11	12	13	14	
Iron, per dozen yards.....	\$1.60	1.30	1.05	0.95	0.90	0.80	0.55	0.44	0.42	0.40	
Brass, " " .....	10.00	8.00	6.35	5.25	4.25	3.50	2.55	2.05	1.70	1.35	
	No... 15	16	17	18	19	20	21	22	23	24	
Iron, per dozen yards.....	\$0.35	0.30	0.30	0.28	0.27	0.26	0.25	0.25	0.25	0.25	
Brass, " " .....	1.00	.86	.82	.75	.54	.50	.45	.40	.40	.40	
<i>Double Jack Chain.</i>											
	No... 10	11	12	13	14	15	16	17			
Iron, per dozen yards.....		\$0.95	0.75	0.65	0.60	0.55	0.43	0.38	0.34		
Brass, " " .....		4.25	3.45	3.00	2.15	1.90	1.50	1.20	1.00		
	No... 18	19	20	21	22	23	24				
Iron, per dozen yards.....		\$0.33	0.33	0.33	0.33	0.33	0.33	0.33			
Brass, " " .....		.75	.65	.62	.60	.60	.60	.60			
<i>Safety Chain.</i>											
	No ..	000	00	0	1	2	3				
Brass, per dozen yards.....		\$1.20	1.30	1.50	1.80	2.40	3.60				
Silvered, " " .....		1.35	1.45	1.65	1.95	2.55	3.75				
Nickeled, " " .....		1.45	1.55	1.75	2.05	2.65	3.85				

**Glass.**—The Glass market continues quiet and without noteworthy features. Stocks of Window Glass, while not large, are probably sufficient to meet the demand during the present shut down of the factories. The outlook for fall trade is regarded by some as very encouraging, confidence being expressed that a business of gratifying proportions will then be done. These observ-

somewhat better than for some time past. Quotations on Glass remain unchanged, as follows: American Window Glass, 2000 boxes at one time, 80 and 10 and 10 per cent. discount; carloads, 400 boxes, 80 and 15 per cent. discount; less quantities than carloads, 80 and 10 per cent. discount. Freight allowed on car lots and over, not to exceed  $17\frac{1}{2}$  cents per 100 pounds; less than car lots, f.o.b. at shipping point. French Window Glass, 75 and 10 and 5 per cent. discount. American Plate ranges in price from 50 and 10 and  $7\frac{1}{2}$  per cent. discount to 60 and 5 per cent. discount. Imported Plate Glass, 60 per cent. discount to 60 and 10 and 5 per cent. discount.

**T**HE COMMITTEE to whom the contributions in Prize Competition No. 18 were referred have awarded the prizes as follows :

First Prize to L. TIFF RISK.  
Second Prize to DANIEL P. HOLMES.  
Third Prize to RICHARD DAVIES.

ANNOUNCEMENT IS MADE under date July 12 that the corporate name of the Parker & Whipple Company, Meriden, Conn., has been changed to that of the Parker Clock Company, by a decree of the Superior Court of New Haven County, Conn., dated July 30. and hereafter all business will be done under that name.

Stone street, through whom his purchases here are handled.

A European importing house some time since intrusted the forwarding of a carload of goods of American manufacture to a veteran export merchant in New York, who evidently proved himself capable as a representative of the house while here, lately put their buying and forwarding in connection with this market into his hands. A favorable freight rate and proper attention secured the later commission.

Hon. James Martin, Jr., ex-member of Parliament for New South Wales, sailed for Liverpool on the "Majestic" July 12, en route to Australia. He spent six weeks at the exposition in Chicago as commissioner for New South Wales, having had instructions to report to that Government on Agricultural and Industrial Machinery.

Otto Lion, New York manager of the extensive house of S. Hoffnung & Co., London and Brisbane, Australia, sailed on the "Normannia" for England, July 20, on a vacation trip.

Under date of July 1, 1893, the well-known export and import firm of Hemenway & Browne, 47 Cedar street, N. Y., and Boston, Mass., together with their foreign branch, Browne, Béeche & Co., in Chili, issue a circular announcing the expiration of their partnership June 30, 1893. The surviving partners, together with others, will continue the business under the same names, and will assume the liquidation of the old firm. They call attention to the fact that their facilities and resources for conducting an export commission business have been largely increased, and that continued attention will be given as well to the importation of Nitrate of Soda and other products of the West Coast. They will continue the service of the West Coast line and will dispatch steamers and sailing vessels from this country to ports on the west coast of South America as heretofore.

REVISED TARIFF IN VICTORIA.—From cable advices received as we go to press we learn that the colony of Victoria, Australia, of which Melbourne is the chief city, has increased its import duty 3 per cent. on everything covered by the schedule.

## Honeyman, DeHart & Co.

HONEYMAN, DEHART & CO., wholesale dealers in Hardware and kindred lines, Portland, Ore., are distributing to their customers a handsome catalogue and price-list of 933 pages, 9¾ x 6¾ inches in size. The entire edition has been bound in red leather, with round corners. The preface announces that, appreciating the wishes of their customers, they have in nearly all cases given the manufact-

urers numbers and lists, and buyers when making up orders are urged to use them. The book illustrates a very extensive variety of goods, including Edge Tools and implements of all kinds for artisans in wood and metals, builders' Hardware, House Furnishing Goods, Culinary Utensils, Sporting Goods, Cutlery, Agricultural and Ice Tools, Merchant and Bar Iron, Tin Plate and Metals, Farm Implements, &c. The book bears evidence of the care expended in its preparation and reflects credit on its compiler. No discount sheet is issued, but prices will be quoted cheerfully on application.

## West Coast South American Trade.

W. R. GRACE & CO., Hanover square, dispatched the steamer "Coya," July 11, on her second voyage to West Coast Pacific ports in connection with their regular steamer line for Talcahuano, Valparaiso, Iquique, Antofagasta, Arica, Callao and Guayaquil. This line was inaugurated in January last, the following additional vessels being in the service—viz., "Capac," "Chola" and "Condor." The "Coya" recently arrived in New York with the first cargo of Chilean and Peruvian products for New York direct by steam. The steamer "Condor" of this line was contracted for January 24 last, and had her trial trip July 6. She will leave Sunderland, England, August 1, and commence loading in New York about August 12. Her capacity is about 5000 tons measurement. This steamer will reach Chili in time to land agricultural machinery for the ensuing harvests, and we are advised that W. R. Grace & Co. have already booked for her many large engagements for freight of this class. The "Condor" is expected to reach Chili in 30 to 35 days.

## Otis D. Dana.

A T A MEETING of the Boston Iron and Hardware Club, held last week, the following resolutions were adopted referring to Otis D. Dana of the Dana Hardware Company, whose death was announced in our last issue:

Whereas, The Boston Iron and Hardware Club has sustained a great loss through the sudden death of our late friend and associate, Otis Dexter Dana, who has been for many years among the leaders in our business community and who had made for himself an enviable name by reason of his kindness and unswerving integrity.

Therefore, be it resolved, That while we cannot make good the loss we have sustained through his death, we can preserve his memory and treasure the example of his upright life.

Resolved, That we tender to the members of his family, in their deep affliction, our most heartfelt sympathy and the assurance that their sorrow, in no small measure, is our own.

Resolved, That these resolutions be entered upon the records of our association as a memorial of one who wrought long and worthily in our midst.

Resolved, That a copy of these resolutions be sent to the family of the deceased.

## Trade Topics.

**Declining Prices.**—The almost constant decline in the prices of Hardware for some time past is a serious matter with the trade, involving as it does the constant depreciation of their stocks. This matter is thus referred to by a correspondent in Kentucky:

We hope bottom in values of staples will be reached and some stability given to values soon. The continually declining markets is very hard on us, as we are compelled to handle carload after carload of Nails, Wire, Rope, &c., without profit, as the decline from the purchase of one lot to that next bought just about represents our margins.

## Trade Items.

WILLIAM H. HART, President of the Stanley Works, New Britain, has recently been in Chicago arranging for a fine display of their wares, but returned home a few days since to attend the funeral of the lamented Judge Chamberlain. The Stanley Works people decided in March last not to exhibit, thinking that they had not time in which to make proper display, but when Mr. Hart came out to see the fair he was so much impressed with it that he wanted his company to be represented in it and, securing space, he telegraphed for an exhibit to be shipped by first express. In five days the exhibit was on hand, set up and ready for inspection. This is referred to in Commissioner Vail's *Weekly Bulletin of the World's Fair* as beating the record.

G. T. ROCK, for many years in the Hardware business at Vinton, Iowa, will soon remove to Lake Charles, La., where he will continue in the same line. Mr. Rock advises us that he will put in an entirely new stock of goods and would be pleased to receive catalogues and price-lists relating to Hardware, Stoves, Tinware, Building and Wagon Material, Farming Tools, &c., until August 1 at Vinton, Iowa, and subsequently at Lake Charles, La.

ANNOUNCEMENT IS MADE July 1 that the H. H. Perkins Mfg. Company, Kewanee, Ill., have sold their entire business, stock, plant, accounts, patents, &c., to the Boss Mfg. Company, of Kewanee, who will enlarge and continue the business, and to whom all accounts are payable. The management will continue the same as heretofore.

CHARLES WEILAND has recently taken possession of his new quarters at 149 Chambers street, three doors below his former stand, having leased the entire building, containing in all seven floors 22 x 70 feet each. In addition to the jobs in Hardware, Tools, &c., heretofore dealt in, a line of Blue and White and Gray Steel Enameled Ware for kitchen and housekeeping purposes has just been taken on. He recently purchased 1500 cases of the Haberman Mfg. Company at auction in this class of Ware.

THE ANNUAL MEETING of the American Axe & Tool Company was held July 5 at Newport, Ky., in accordance with the requirements of the charter obtained under the Kentucky laws. With one exception the directory of last year was re-elected and comprises the following gentlemen: Charles W. Mackey, H. Knickerbacker and F. Q. Barstow of New York; E. Rogers, Ballston Spa, N. Y.; F. T. Powell,

Jamestown, N. Y.; Robert Mann, Sr., Mill Hall, Pa.; J. P. Romer, Gowanda, N. Y.; Charles Lockhart and C. W. Hubbard, Pittsburgh, Pa.; G. T. Lane, Troy, N. Y.; W. T. Norton, Cleveland, Ohio; S. C. Lewis, Franklin, Pa.; J. Fearon Mann, Bellefonte, Pa.; A. C. Mann, Mill Hall, Pa., and James H. Mann, Lewiston, Pa. Mr. Mackey was elected president, Robert Mann, first vice-president; F. Q. Barstow, second vice-president; James H. Mann, treasurer, and W. T. Norton, secretary.

**LITTLE GIANT LETTER PRESS COMPANY**, 107 Chambers street, New York, are handling what they call the Handy Pencil Sharpener, which has recently been improved in the method of setting the knife. The main portion of the Sharpener is of Cast Brass, while a blade of Tool Steel, finely tempered and sharpened, is now held in proper position by means of two pins cast in the body, while the blade is held in place with a small thumb screw, obviating the use of a miniature Screw Driver. The article is  $1\frac{1}{8}$  inches long,  $\frac{5}{8}$  inch in diameter, and put up singly with three extra blades weighs about 1 ounce. They can be furnished in plain Brass, or Brass bronzed or nickel.

**WADDEL WOODEN WARE WORKS**, Greenfield, Ohio, are manufacturing a combination Paper Weight, Puzzle and Game, which they designate "Nip and Tuck." "Nip and Tuck" is a recent invention of Mr. Waddel. The device is referred to as beautiful in design and finish, and attention is called to it as an excellent advertising medium as well as an article of sale.

**THE MISSISSIPPI AND MISSOURI VALLEY HARDWARE ASSOCIATION** closed its annual meeting at Lake Minnetonka, Minn., with the election of the following officers: President, T. G. Walther, St. Paul; secretary, J. W. Hill, Minneapolis; vice-president, Robert Donohue, Burlington, Ia.; treasurer, C. A. Knapp, Sioux City.

**J. L. DILL**, for many years a salesman representing the Union Nut Company of this city, while returning with a friend from a visit to Brooklyn Sunday night fell overboard from the 11 p.m. annex boat, and was drowned. Ropes were thrown to him by the deck hands and every effort made to save him, but without success. No trace of the body has yet been found. Mr. Dill was a single man and highly esteemed by his employers.

**THE TRADE** will be interested in the page advertisement of the Standard Horse Nail Company, New Brighton, Pa. This company are manufacturing hot forged Horse Nails from pure natural gas heat. It will be observed that the list on the Nails is given, it being intimated that discounts will be quoted on application. Samples of the Nails can also be had on request.

**SOME REPORTS**, more or less exaggerated, having been circulated concerning the shutting down of Charles Parker Company's mills, at Meriden, Conn., we are informed by those in a position to speak that it has been customary for the company to close the works at this season of the year for upward of 20 years, and that they expect to start up again in August.

**THE S. OBERMAYER COMPANY**, manufacturers of foundry Facings and supplies, Cincinnati, Ohio, are grinding a special grade of Plumbago (Graphite), which they recommend as a lubricant for cyclers' use. The statement is made that the highest grade known is used.

**THE WYOMING SHOVEL WORKS**, incorporated June 29, 1893, have purchased the plant, fixtures, patents,

good will and all interests of Payne Pettebone & Son, Wyoming, Pa., and will continue the business, employing the same workmen and the same quality of materials in the making of goods. They advise us that, with increased capital, they intend to enlarge their plant, manufacturing all kinds of Shovels, Scoops and Spades and making a specialty of high grade Shovels and Scoops under the Pettebone patents, which are referred to as particularly adapted to railroad, furnace and miners' use.

**ROYER WHEEL COMPANY** announce that they have removed their large stock of Wheels and general supplies to 107 Chambers street, New York, where it will be under the management of Paddock & Kleine, successors to the New York Sarven Wheel Company, who will collect all outstanding accounts and have charge of their New York interests.

## Atlas Tack Corporation.

**THE ANNUAL MEETING** of the stockholders of the Atlas Tack Corporation, 508 Sears Building, Boston, was recently held, the former officers being re-elected as follows: Henry Hobart, president; T. J. Lothrop, vice-president; John H. Parks, treasurer, and Jos. Pettee, Jr., secretary. These gentlemen with C. D. Hunt comprise the Board of directors. The annual statement of the company was presented and is as follows:

Assets, real estate—viz., land and water power—\$74,000; buildings, \$126,000; machinery, \$325,054.06; other assets—viz., cash on hand, \$152,235.79; debts receivable, net, \$208,025.29; manufactures, merchandise, material and stock in process, rolling mills, raw, \$53,742.72; branches, \$796,706.87, \$850,449.59; office fixtures, \$1500; miscellaneous, market value, \$14,407.50; sinking fund to redeem bonds, market value, \$8400; total, \$1,760,073.23.

Liabilities: Capital stock, \$700,000; funded debt, ten year bonds, due 1901, \$280,000; debts, \$704,123.81; surplus, \$75,949.42; total, \$1,760,073.23.

The treasurer reported that the sales of the corporation were about 25 per cent. in excess of the previous fiscal year. The net profits of last year were about 10½ per cent. on the capital stock. A dividend of 6 per cent. was recommended, but the treasurer suggested, in view of the unsettled condition of the money market, and the widespread disturbance in general business, that it would be prudent to postpone the payment for a little while until their unusually large stock of merchandise on hand is reduced to its normal amount. In this view the stockholders present unanimously concurred.

## Mortimer McRoberts Company.

**A NEW Copper and Brass Goods** house has been established in Chicago by the Mortimer McRoberts Company. Mortimer McRoberts, the president of the company, has long been known to the Western Hardware trade. M. H. Kiebel, the secretary, and S. Rose, the treasurer, are also men of experience and wide acquaintance. Associated with them are F. E. Pomeroy and J. P. McCreedy. They opened temporary quarters at 90 Market street, Room 305, but will hereafter be located at 230 Lake street, where they will carry Sheet and Roll Brass and Copper, Brass and Copper Wire, Bare and Insulated Electric Wire, Rods, Tubing, Rivets, Pins, Chains, Lamps, Lamp Trimmings, Shades, Wick, Oil Cans, Furniture Trimmings and Sheet Metal Goods in great variety, being direct and sole representatives of leading manufacturers.

## World's Fair Exhibits.

**THE EXHIBIT** of Nicholson File Company, Providence, R. I., is located in the northeast quarter of Manufactures Building, Section P, Block 3, No. 79. The exhibit consists of the following: One revolving drum, length 6 feet, diameter 4 feet, which shows 1321 Files of finer grade, (X-F) brand; one revolving turret, showing an assortment of 165 fine (X-F) Files, 5 inches long and under; two upright showcases, 6 x 10 feet each, showing a general assortment of regular Nicholson Files, consisting of 1307 Files and Blanks, also 142 Sections of Steel; three flat showcases, containing an assortment of over 800 varieties of large and small Files, also a variety of Tools and specialties. The total exhibit comprises more than 3500 articles, showing over 3000 distinct varieties of Files.

**FAYETTE R. PLUMB** of Philadelphia makes an exceptionally fine display of Hammers, Edge Tools, Sledges, Track Tools, Picks, Grub Hoes, &c., in his space in the Manufactures Building. The arrangement is noteworthy. The space secured being square, a large square showcase has been erected, 10 feet in height, inclosed with glass on all sides, leaving space for visitors to pass around the case. The railing inclosing the space consists of iron chains, with an ornamental centerpiece of open forged work. The goods in the showcase are arranged on the sides of a large pyramidal frame covered with velvet. One side is devoted to Butchers' Cleavers, Broad Axes and other tools of this class. Another side shows all kinds of Hammers, arranged in concentric circles, with two mammoth Hammer Heads in the center, appropriately etched and so brightly polished that they look as if nickel plated. Hatchets in enormous variety cover a third side. These are arranged in a number of circles, with a huge exhibition Hatchet in the center. The fourth side is used for displaying Picks, Mattocks, Grub Hoes and Track Tools, a very large exhibition Grub Hoe occupying the post of honor in the center. Arranged at the bottom of the case is a miscellaneous assortment of unhandled Sledges, Hammers, Blacksmiths' Tools, Picks, &c.

**J. C. WHITE & Co.**, 613 Sixty-fifth street, Englewood, Chicago, exhibit in the Manufactures Building White's Improved Nail Counter. This Nail counter has already been illustrated and described in our columns. The main idea of this counter is to put the Nails in a paper bag, weighing them at the bin, instead of carrying the Nails to the scale and then putting them into sheet paper, as on the old plan. The scales and weighing scoop are arranged on an upright frame extending above the top of the counter. This frame travels back and forth on a track in front of the Nail bins. The bottom of the scoop is movable, so that the contents can be readily dropped into a sack after they are weighed.

**THE WITHINGTON & COOLEY MFG. COMPANY** of Jackson, Mich., make a very unique display in the Farming Tool line. They were hampered for room, but have, nevertheless, done exceedingly well. The space is located in the Manufactures Building and is inclosed by a fence composed mainly of pickets of Border Cutters and Weed Spades alternating, with the blades up. Along one portion of the front the fence is made of Spade Handles, the entrance being arched over by two Cradles. Within the inclosure are other peculiar features. A pavilion and a log cabin have been built. The pavilion has a roof of Steel Hoe Blades supported by columns inclosed by Forks,



with the tines pointing upward. The log cabin is built entirely of Handles, notched, and laid in the approved style of primitive days. Inside is a desk for the use of the attendant, P. W. Green. Specimens of the company's tools are shown in some of F. A. Herrick & Co.'s Tool racks. Two sizes of these racks are in use, the large size holding 164 different tools and the small one 92. A large circular showcase, with glass doors, occupies the center of the pavilion, and is used to display a number of tools also. The company show many tools not ordinarily called for, and also display a number of new patterns brought out this season. On several boards, placed in conspicuous positions, they show the different stages through which a steel bar passes as it is being manufactured into a Fork, a Rake or a Hoe.

THE CHICAGO SPRING BUTT COMPANY of Carroll avenue and Union Park place, Chicago, have taken great pains with their exhibit in the Manufactures Building, and the result is a very attractive showing of their specialties. In large upright glass cases are displayed all kinds of Spring Butts, from the huge hinges used on engine-house doors to the small ones for light doors in dwelling houses. They are shown in various styles of finish—japanned, silver plated, nickel plated, gold plated, bronze, brass, &c. Among the special hinges are attachments for marble water-closet doors and saloon doors. Specimens are also displayed of door hangers in a number of patterns and in different sizes, very handsomely finished. The company also make metal house numbers, foot rests for boot-blackening stands, door pulls, &c. To illustrate practically the action of their hinges a number of small doors are shown mounted in frames.

GENEVA TOOL COMPANY of Geneva, Ohio, makers of Hand Farming Tools, have utilized a good-sized space in the Manufactures Building, in making their exhibit. It is inclosed on three sides by a high partition decorated at the top with a carved cornice and railing. To this partition are attached numerous samples of handled tools, such as Forks, Hoes, Garden Rakes, Potato Hooks, Snaths, Hand Hay Rakes, &c. Some portions of the space, otherwise wasted, have been used for exhibiting Socket Tools without handles. On one of the external sides of the partition a good display is made of Forks, Hoes and Rakes without handles, the goods being highly polished.

THE RUSSELL & ERWIN MFG. COMPANY of New York, whose factories are at New Britain, Conn., make one of the very finest exhibits to be seen in the Manufactures and Liberal Arts Building. Their space is of good size and it has been well laid out. It is inclosed on three sides by high glass cases in ebony with gilt lettering. Two of these cases extend along side aisles, enabling both sides of the cases to be utilized in displaying goods. The center of the space forms a good-sized room, which is richly carpeted. Here also are tables on which some of the company's finest Locks and Store Door Latches mounted on blocks are shown, also their new Meat Choppers, new Push-Button Door Bells, imitating electric bells, new Sash Lock for very heavy sashes, and some other specialties. A car door, hung in a frame, shows the method of operation of the Home Door Check and Spring, which it is claimed is the only air check which will hold a door open as well as close it. The variety of goods shown in the cases covers almost everything in the shelf Hardware line. Four of the largest cases are used for Locks, Knobs, Escutcheons, Push Plates, &c. Conspicuous among these

goods are the new Wrought Steel Locks, which have proved so popular. In small glass-covered compartments below are shown the Reverse Helicoid Bolts in papers and in loose piles, in iron and brass. These are intended for use on shafts and agricultural implements, tires, sleigh shoes, &c. The Helicoid Shank Wood Screw is another article specially made by the company, shown in various sizes and metals. There are also Stove Bolts, Machine Bolts, &c., displayed in the same manner. In another very large case are shown Carpenters' Tools and Fire Irons. The tools consist of Steel Squares, Chisels, Screw Drivers, Draw Knives, Boring Machines, Augers and Auger Bits, &c. Among the novelties in this line are Acme Tool Chests containing sets of Auger Bits, Gimlet Bits, Countersinks, Screw Driver Bits and Auger Bit Handles. There is also a Ratchet Auger Handle, which has just been brought out. The sets of Fire Irons embrace a number of new patterns with exceedingly artistic handles in brass and copper. In glass-covered compartments below this case are shown in papers and in loose piles a large assortment of Wood Screws, Brass and Steel Escutcheon Pins, Brass and Steel Wire Nails, plain and barbed; Carpet Nails and Stove Door Pins. The development of the artistic in the Builders' Hardware trade is strikingly manifested in this fine exhibit. Ornate patterns are shown in Door Handles for stores and large buildings which would not have been attempted ten years ago, but now the taste for fine Hardware has so grown that the highest artistic skill is called into requisition in the preparation of designs. The skill of the company in the production of fine bronze castings is shown in the exhibit of intricate patterns just as they came from the sand, but having the appearance of being carefully finished. A curious fact worthy of note is the preparation of an American list on Door Knockers, caused by the frequent applications for Knockers since the opening of the exposition.

THE ENTERPRISE MFG. COMPANY of Philadelphia have their exhibit at the World's Columbian Exposition in section O, Block E, northeast quarter of the Manufactures and Liberal Arts Building. Their space is 16 x 25 feet, located on the lake shore side of the building, quite close to one of the main entrances, and fronts on two aisles, one of which is a main aisle directly under the gallery. They exhibit every article of their manufacture and their representatives are prepared to demonstrate in a practical manner the utility and excellence of their goods. To better illustrate the various sizes and styles and finish of their well known Coffee Mills, a pyramid has been erected, and upon the sides of this steps have been placed at regular intervals. On the steps are arranged a series of Coffee Mills, from a very small family size up to a popular grocery store Mill. Beneath the pyramid there are placed upon a raised platform five of the more popular large size grocer's Mills, and these are operated by electric power, the belts having been so hidden from view as not to disclose the mode of running them. The whole effect is most pleasing and causes much pleasant comment. Quite a feature of the display consists of two life-size Chinese automations which have been attached to the largest size Coffee Mill made by the company, and the heathen are thus caught in the act of grinding coffee. The Enterprise Choppers, Stuffers, Sad Irons and Lawn Mowers all have proper representation. The exhibit is in charge of Frank Wiswell, who is at all times pleased to extend any courtesy and assistance to those interested in Enterprise goods.

## Price-Lists, Circulars, &c.

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn., New York and San Francisco: Repeating Fire Arms and Metallic Ammunition. Their catalogue for June, 1893, of 84 pages, contains illustrations, descriptions and prices of these goods. Attention is called to their new Repeating Shot Gun, model 1893, which they are now putting on the market.

THE MILFORD MFG. COMPANY, Milford, Ohio: Suction Carpet Sweepers. The manufacturers refer to the Sweepers as especially adapted to good grades of carpets. The bristle brush is provided with fans between the bristles to create a vacuum, the design being to draw the dust and sand from the carpet instead of rubbing it in.

SIMONDS MFG. COMPANY, Fitchburg, Mass., and Chicago, Ill.: Flash Lights on the Saw. This is a unique little pamphlet, handsomely printed and arranged, illustrating Saws of the stone age, bronze age and those used in the South Sea Islands in 1768. It also shows Egyptian and Greek sawyers, the Up-and-Down Saw, and traces the history of Saws up to the present time.

HUBER & KALBACH COMPANY, Oska-loosa, Iowa: Hints. This is a catalogue of 40 pages for the retail trade, and contains information on building dwellings and barns, and gives tables of weights, measures, breaking strain of rope, number of nails to the pound, &c. The book is tastefully arranged, well printed on a fine quality of paper, with numerous illustrations of season goods. At the back of the book are ruled pages in blank form for the use of farmers in keeping a record of their transactions.

THE STANDARD SCALE AND SUPPLY COMPANY, Pittsburgh, Pa.: Standard Scales, &c. A large card is sent by this firm calling attention to their line of goods, including Scales for all purposes, Wood Pulleys, Wood and Steel Wheelbarrows, Copying Presses, Portable Forges, Car Movers, Jacks, Injectors, Pipe and Fittings, Coke Forks, Coal Shutes, &c.

EUGENE MUNSELL & Co., New York: Mica. The standard price list of selected Mica for 1893 is given in a folder, in addition to which are prices and sizes of assorted packages of North Carolina and Wyoming Mica, put up expressly for the retail trade.

THE HOLT MFG. COMPANY, Hartford, Conn.: Smith's Braces and Tool Holders. These are referred to as simple in construction and the holding as equal to the resistance of the bit or tool used. These goods are put up in machinists' and household sets.

COVERT MFG. COMPANY, West Troy, N. Y.: July, 1893, catalogue and price-list. Their extensive line of Cattle Ties, Chains, Halters, Halter Leads, Hammock Ropes, Hitching Cord, Horse Ties, Irons, Jacks, Snaps, &c., are illustrated and described. Special attention is called to their new Steel Spring Yankee Snap, Combination Adjustable Halter and improved Emons Jack. The last three pages of the catalogue contain a complete list, in numerical rotation, of all the numbers used to designate the company's goods.

MAGIC INTRODUCTION COMPANY, 321 Broadway, N. Y.: Catalogue of patented specialties, containing an assortment of Pocket Lamps and Match Boxes, Savings Banks, Pocket Cameras, Pencil



Sharpeners, Metal Pencils imitating Wire Nails, Screws, Nuts and Bolts, &c.; Pocket Books, Pencil Boxes, Card Receivers, Soap, Tobacco and Stamp Boxes, &c. In the introductory notice they call attention to the fact that orders for specialties in all classes of Light Metal and Wood Work are solicited from the trade.

**BREUSTEDT & HARRISON, Waco, Texas:** Illustrated catalogue. The catalogue represents the line of Blacksmiths' and Wagon Makers' Tools and Supplies, Hardware, China and Crockery, House Furnishing Goods, &c., handled by them as wholesale and retail dealers. The catalogue is well printed, and illustrates in a satisfactory manner the varied assortment of goods which they are prepared to supply to their customers.

## Paints and Colors.

*It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.*

The market for nearly everything in this line has been quiet. Outside of very fair orders for Red Lead Whiting and Paris Green for future delivery the dealings have been on strictly hard to mouth lines, since grinders are only partially employed, while painters seem to be doing less work than usual at this season of the year. No radical changes in prices have taken place, but the undertone is rather weak and concessions of some kind or other by sellers are the rule rather than the exception.

**White Lead.**—The list prices for corrodors' product remain unchanged, but on actual dealings, more particularly at second hands and in some out-of-town markets, those figures are directly or indirectly shaded to some extent. Business has been slow and the demand is almost wholly for small quantities for immediate delivery. Mixed Lead is also rather dull and moving at irregular prices.

**Red Lead and Litharge.**—One or two fairly large orders for Red Lead for future delivery have been placed, but the general demand continues slow and the market is still in somewhat unsettled condition. Former prices are generally quoted for both domestic and foreign product but sharp buyers obtain special favors that cheapen the actual cost in some degree.

**Orange Mineral.**—Freer arrivals of French have in a measure relieved the market for the moment, since demand is moderate. Values remain steady at 10¢ @ 10½¢, as to quantity and position of goods. It is understood that some lots of German have been sold to arrive at low figures for cash against documents. Beyond this there has not been much done except in a jobbing way at 7½¢ @ 8¢ for spot and 7½¢ @ 7¼¢ to arrive, as to brand, quantity and date of arrival. Domestic makes are receiving a fair share of attention both for spot and for early fall delivery. Sellers' figures are 8½¢ @ 8¼¢, as to quantity, less the usual discount. For a round lot it is reported those figures can be shaded.

**Zincs.**—With many mills closed for the usual summer vacation, trade is quiet and nearly all the grinders are having their deliveries held back for the present. Prices for domestic product, however, remain steady at 4¼¢ @ 5¢, as to quality and quantity. French is in the same position as regards demand, with prices unchanged.

**Colors.**—A full average distribution of Paris Green is noted and other insecticides are selling very well also,

chiefly at former prices. Bulk Colors for grinders' use find slow sale, however, and there is hardly anything doing outside of a moderate jobbing trade in Dry or Oil Colors for painters. Prices are somewhat variable, as not unusual on a dull market, yet without radical change. Ready-Mixed Paints have met with fair sale, chiefly in small lots.

**Miscellaneous.**—Block Chalk continues to sell in a moderate way to a fair extent and prices are firm at \$1.75 @ \$1.90 sail shipments. Whiting is still in good demand particularly from Western districts, and new orders are being booked while old ones are being rapidly filled and shipped. The local demand is quiet. Prices remain practically as they have been quoted for several weeks.

## Oils and Turpentine.

Business in nearly all lines of animal and vegetable Oils has been moderate, and the general demand is spiritless at the present time. With Lard and inferior Greases somewhat higher, there is better tone to the market for Lard Oil, Cotton Seed Oil and Soap stock generally, but no decided changes have taken place and the strong features are offset in a measure by the dull condition of trade.

**Linseed Oil.**—There has been rather free offering here of some out of town brands, with rather low quotations made on fair-sized lots, cash terms, for immediate delivery. On those brands 47¢ was named in a few instances. Apart from this the market is bare of new features. Trade is slow and deliveries are hardly up to the summer season average, but city crushers still quote prices on the basis of 50¢ for Raw Oil manufactured from domestic seed.

**Cotton-Seed Oils.**—The market has been slightly variable and has fluctuated within a range of 2¢ per gallon. Sales have been made at as high as 43¢ for Prime Yellow and as low as 40¢, recovering to 42¢ as demand developed. Trading has been spasmodic and chiefly in lots of 200 to 300 barrels. The business with the Mediterranean within the last ten days has amounted to 1400 barrels and was made up of several lots. This served to stiffen prices, as did also additional inquiry from the same quarter. Crude Oil has been sold at prices on the basis of 35¢ for Prime quality.

**Lard Oil.**—While trade is far from satisfactory to pressers, the position of the raw material admits of no further concessions from previous prices, and the market remains as outlined last week. The demand at present is purely consumptive, and such purchases as have been transacted during the week were of small jobbing parcels for immediate delivery. The off-grade Oils have attracted but little attention and are quoted as more or less nominal.

**Menhaden Oil.**—There were a few small sales of Crude Oil sold during the past week at the former price of 33¢. Refined Oil was in light request at unchanged prices. We quote: Bank and Straits, 37¢ @ 38¢; Brown Strained, 38¢ @ 39¢; Light Strained, 39¢ @ 40¢; Bleached Winter, 43¢; Extra Bleached Winter, 45¢; Winter White, 46¢, as to quantity and quality.

**Sperm Oil.**—There is little to report concerning this Oil, either in this or the New Bedford market. From the latter place we are informed that holders are still firm in their prices, maintaining their stocks in anticipation of a more active and higher market. Prices remain as last quoted.

**Whale Oil.**—There have been no sales in the crude Whale Oil market during the past week. Holders are still retaining their stocks, as they deem it wiser to wait than to grant concessions that would entail loss of profit. The

manufactured Oils have been slow of sale, but the prices for the same are evenly maintained. We quote: Natural Winter, 48¢; Natural Spring, 47¢; Bleached Spring, 50¢; Bleached Winter, 51¢, and extra Bleached Winter, 53¢, as to holder.

**Spirits Turpentine.**—The market has remained very quiet, with prices still irregular and leaning more or less in buyers' favor.

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### The Smith Brace.

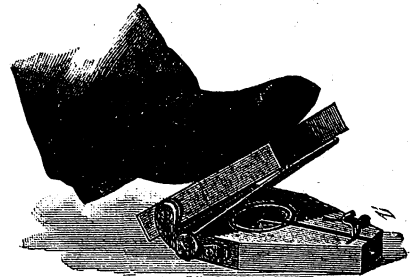
The Holt Mfg. Company, Hartford, Conn., are introducing the brace shown in Fig. 1. The sleeve is made of steel, knurled to give a grip to the hand, and the tools are drawn to a V, as in Fig. 2. The tool is held by means

are warranted not to tarnish. A number of paper cutters of varying designs have been made for enterprising advertisers, who distribute them gratis. One in particular attracts attention. It is about 9 inches long, tapering to a point, with a swelled center. On a satin finish is given a section for

pulled and the strips are neatly severed, the original coming out of the slot and the duplicate being securely filed inside the register, which is kept locked. The ticket recording the transaction may be referred to at any time. This ticket may also give the number each employee may adopt, and in this way the total sales of each clerk may be ascertained.

### The Go-Bang Rat Trap.

Waddel Wooden Ware Works, Greenfield, Ohio, are putting this article on the market, an illustration of which is



The Go-Bang Rat Trap.

given herewith. This trap can be set automatically by the hand or foot. Its construction is such, it is stated, as to render its action unerring, the simplicity being also referred to as reducing the cost of manufacture to a minimum.

### Royal Coffee Pot.

M. Stransky & Co., 27 Murray street, New York, are offering the above goods,



Royal Coffee Pot.

as illustrated herewith. They are furnished in assorted colors, cameo, inlaid and garnet. The features of the pot are

Fig. 1.—The Smith Brace.

of the sleeve, which, after the tool has been inserted, is turned on the screw at the end of the sweep of the brace until the shank of the tool is fastened in a V-shaped slot, where, it is stated, it is held firmly in line. It is explained that by means of a double thread, the sleeve being turned to the left and the tool to the right, the tool is quickly adjusted, and once in is held in a vise-like grip. The manufacturers remark

measuring up to 6 inches, graduated as on a rule. A plessing effect is obtained in incandescent electric light shades, which are made in eight shapes. Bon-bon boxes, smokers' sets and medallions are also shown. One of the latter, the die for which is made at the Philadelphia Mint, is particularly noticeable. There are also 23 patterns of pocket match boxes, five in aluminum and the balance in German



Fig. 2.—The Tool in the Sleeve.

that they furnish bits and all tools wanted to use in a brace—fitted to these braces—of the best quality, at prices as low as the old fashioned shank. The braces may be used in connection with old style bits by means of the chuck shown in Fig. 3, which, it is stated, is furnished without extra charge. The point is made that this attachment makes the brace no longer than the

silver, brass and numerous finishes of copper, nickel, &c.

### The Kirograf Cash Register.

This register is manufactured by the Waddel Wooden Ware Works, Greenfield, Ohio, and is illustrated herewith. The machine is  $4\frac{1}{2}$  inches wide,  $12\frac{1}{2}$  inches long and 8 inches high. It is of handsome design and nickel plated. The register has but a single spindle for the paper roll, on which is wound two or three strips of paper, 250 feet each in length. These strips pass under the frame as shown in the cut, there being a carbon sheet firmly attached between the strips of paper. When a cash or credit sale is made it is written on the

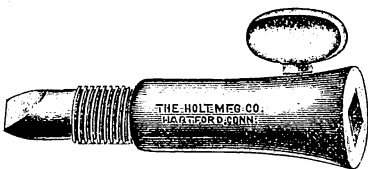
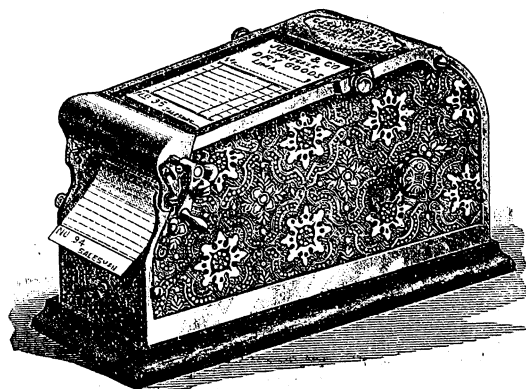


Fig. 3.—The Square Chuck.

ordinary sleeve brace, and that it does not detract from the lightness or handiness of the tool. Strength is one of the particular claims made for the brace, and it is claimed that two-man power cannot injure or break it.

THE SCOVILL MFG. COMPANY, Waterbury, Conn., and 423 Broome street, New York, are producing a very attractive line of aluminum goods, many of which are suitable for holiday trade, while many may be more properly classed as staple. There is a generous assortment of beveled mirrors for dressers, &c., photograph frames in 15 styles, card trays in 16 different patterns, napkin rings, puff and hair pin boxes in many varieties. Plaques and panels for decorative art work, which can be painted on in oil or water colors, and



The Kirograf Cash Register.

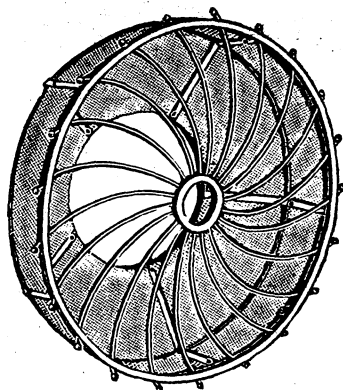
top sheet, which is in the form of a bill head, and a duplicate or triplicate copy is made. The crank, as shown in the cut, is then turned, the knife lever

the hinge and the manner in which the wooden handle is fastened to the body of the pot. Two rivets, on which a thread is cut, pass through the body of the

pot at the back, near the seam, and are riveted on the inside of the pot before the coating is put on the metal. The handle is fastened to metallic pieces, which, in turn, are secured to the pot by caps screwed on to the threads of the rivets. The hinge is fastened to the upper metallic piece. This arrangement is referred to as preventing the handles from getting hot or coming off. Tea pots are provided with the wooden handle and hinge the same as the coffee pots. The covers of both lines of goods are nickel plated.

#### Electric Fan Guards.

The fan guards illustrated herewith are manufactured by the Ludlow-Saylor Wire Company, St. Louis. One of these guards, it will be observed, is covered

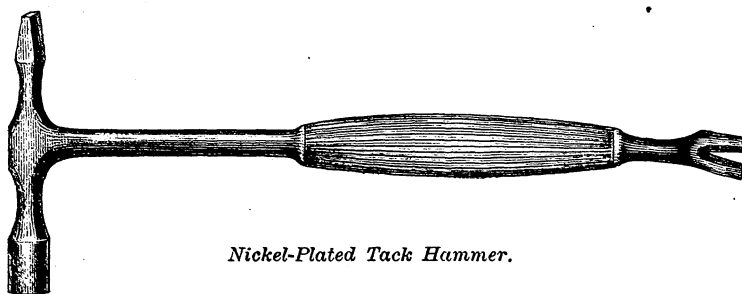


Electric Fan Guards.

t the back and sides with fine brass wire, preventing the throwing out of insects, dirt, &c., by the fan. The construction of the other guard is designed merely to prevent accidents by handling.

#### Nickel-Plated Tack Hammer.

Troy Nickel Works, Troy, N. Y., are offering a tack hammer as herewith



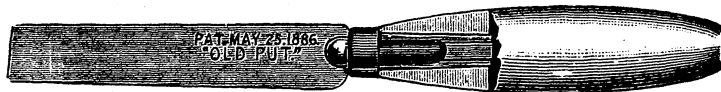
Nickel-Plated Tack Hammer.

shown. The hammer is made of steel, full nickel plated, with the handle part of rubber. The manufacturers refer to the article as being especially adapted to ladies' use.

#### Old Put Knives.

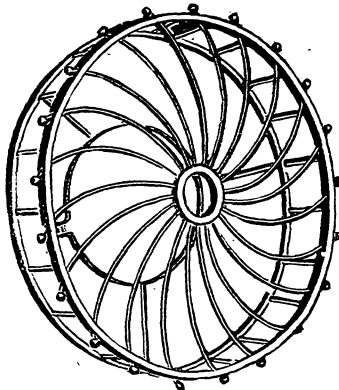
Putnam Cutlery Company, Putnam, Conn., Horace F. Sise, 114 Chambers street, New York, agent, are offering a line of knives with handles, as shown in the accompanying cut. The illustration shows part of the handle cut away to show the manner in which the blade is secured at the shank. A continuous piece of steel, stamped to shape, is placed on each side of the shank and forced into the handle, the

steel extending beyond the ferrule a short distance. Knives are made with this style of handle of the following kinds: Shoe, rubber, rattan, butcher, bread, cigar, paper, oyster, lemon, oil-cloth, hop, factory, banana, gilder's cake and putty. Lemon knives are



Old Put Knives.

triple silver plated, and factory knives have heavy 4-inch blades. Extension blade handles are also made by the company. The manufacturers claim as a result of this arrangement of handle



blades now being attached direct to the steel handles after giving them the desired shape. It is explained that by this improvement the weight of the auger is reduced to 14 pounds, or about 4 pounds less than the old style; also that strength is gained on account of

the peculiar shaping of the handles at the hand-hold ends, making it more convenient to use. The point is made that the auger may be placed in boring position, in a closed position to remove the dirt from the hole, or opened in the position for emptying, at the will of the operator, without the use of any spring



Fig. 2.—Closed for Removing from the Post Hole.

that the knife cannot be broken in the shank nor work loose in the handle.

#### Improved Gem Post Hole Auger.

The Buckeye Mfg. Company, Union City, Ind., are putting their improved post hole auger on the market, as shown in the accompanying cuts. In Fig. 1 the auger is shown in the position for boring. The improvement consists, it

or removing the hands from the handles. The manufacturers claim that the auger will work in any kind of soil in which other augers will work, and that the shape of the bits at the point is such as to allow them to be closed so tightly that very fine dirt or sand may be re-

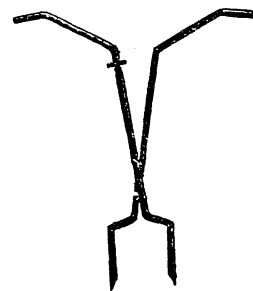


Fig. 3.—Open for Emptying.

is stated, in the peculiar shaping of the handles, making them more convenient,

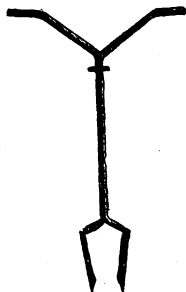


Fig. 1.—Improved Gem Post-Hole Auger.

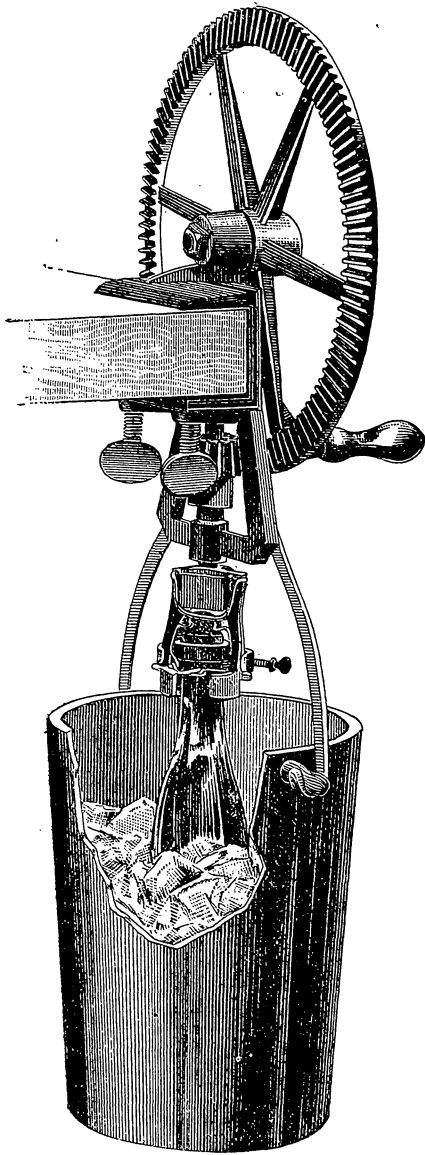
and the leaving off of the castings to which the blades were attached; the

moved from the hole. The auger, we are informed, is made in all sizes from 5 up to 10 inches.

THE MUNGER-COLTON MFG. COMPANY, 142 Lake street, Chicago, manufacturers of hardware specialties, have arranged their financial matters to the satisfaction of creditors, secured additional capital to be used for working capital and have resumed manufacturing operations. Among their specialties are Door Hangers, Transom Lifts, Pocket Screw Drivers, &c. We are pleased to learn of the resumption of business by concerns like this which have been forced to the wall by the financial stringency. Men have not lost their confidence in the recurrence of prosperity and are again taking chances on the future.

**Wine or Beverage Cooler.**

Cobin Mfg. Company, 107 Chambers street, New York, are introducing a wine cooler, as here shown. This apparatus is designed to freeze or frappe a bottle of wine or other beverage in from three to five minutes, and is intended to obviate the necessity of keeping various bottles in the refrigerator. It also enables a host to meet an emergency quickly. The bottle may be cooled in the ordinary fiber or other

*Wine or Beverage Cooler.*

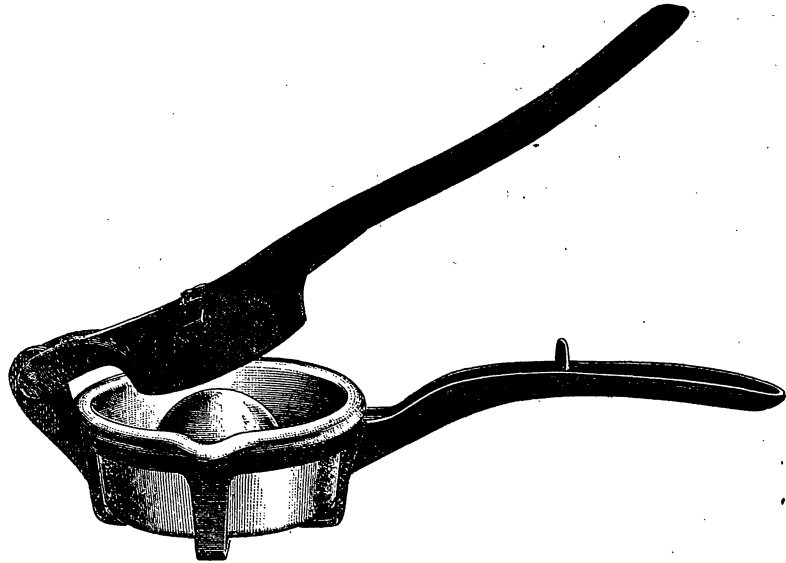
bucket with the usual ice and salt mixture. With each machine is included a perforated zinc shell, which can be slipped over the bottle in the ice, permitting the bottle to be drawn from and replaced in the cooler instantly. The machine is galvanized to prevent rust, is 20 inches long, the large wheel being 12 inches in diameter. To make it noiseless, the small gear is of rawhide, while the clamps catching the neck of the bottle are lined with the same material. In commercial shape, the apparatus, bucket and zinc shell are put up complete in a crate in shipping order.

COATES CLIPPER MFG. COMPANY, 237 Chandler street, Worcester, Mass., have recently built an addition to their factory, 150 x 50 feet, two stories high, nearly doubling their capacity.

**L. F. & C. Lemon Squeezer.**

Landers, Frary & Clark, New Britain, Conn., with a branch house at 298 Broadway, New York, are introducing a household convenience, as here illustrated, which they designate the L. F.

to the top, being 7 feet high, 3 inches in diameter at the top and 4 inches at the bottom. At the bottom of the post the metal does not meet, and in driving a heavy sledge is used, no holes being dug or bored. It is explained that the earthen core is compressed by the de-

*L. F. & C. Lemon Squeezer.*

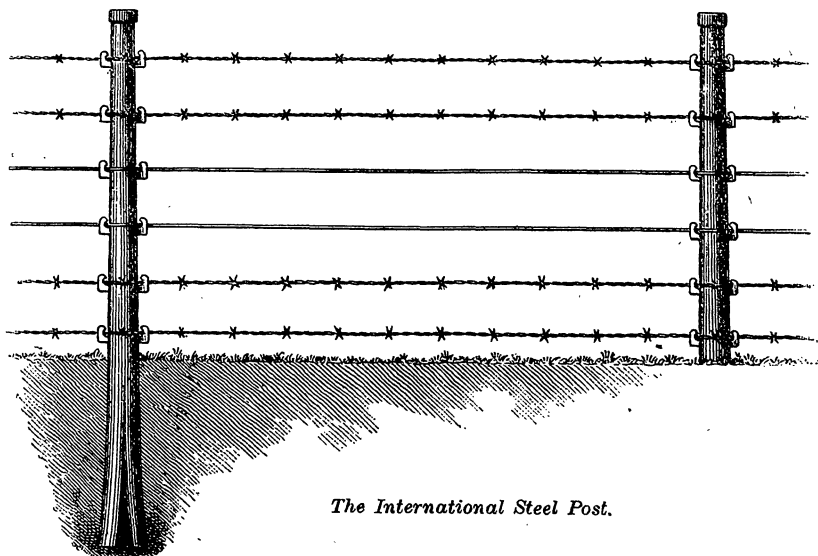
& C. lemon squeezer. The frame work is of iron jappanned, the under portion being so constructed as to furnish a firm support for the cup of block tin into which the juice is forced. This cup will receive the juice of two or three lemons and has a lip on one side, which insures a good pour. The squeezer is 10 inches long, the cup being nearly 4 inches across and 1½ inches deep.

**The International Steel Post.**

The accompanying illustration represents the above article, as put upon the market by the International Steel Post Company, St. Louis and Chicago. The post is made from a steel blank, with rows of slots punched in it, so they come opposite to each other when the blank is made into the cylindrical form

creasing diameter of the post as it sinks, and that the tendency of the base of the post is to spread while being driven, thereby effectively locking itself in the earth. The manufacturers claim that weeds and grass can be burned, and insects destroyed, without injury to the posts or fence, that high water and overflows will not raise them out of the ground, that no upheavals from frost is possible, that the posts are fire proof, rust-proof and frost-proof, and that one mile of this fence can be put up complete in about the same time as is required to set 20 wood posts.

COBIN MFG. COMPANY, 107 Chambers street, N. Y., are introducing a Refrigerator Shelf, a patent for which has been applied for. It is a combination of steel strips, tubes and rods in a

*The International Steel Post.*

shown in the cut. Through these slots the malleable iron keys for holding the wires are put. The post cap is of pressed steel, and is placed on the post before it is driven into the earth. The post tapers somewhat from the bottom

frame, which can be of any size or shape. It is galvanized after it is made. Emphasis is laid on the fact that there are no cracks, crevices or holes into which substances of any kind can accumulate and decompose, and that it can be quickly cleaned.

# Current Hardware Prices.

JULY 19, 1893.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&100 50&100 5& signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

## Adjusters, Blind—

Domestic..... \$ doz \$3.00, 88¢  
Excelsior..... \$ doz \$10.00, 50&100 25  
North's..... list net @ 10%  
Zimmerman's—See Fasteners Blind.

## Ammunition—See Caps, Cartridges, Shells, &c.

## Anvils—

Eagle Anvils, 8 in. 15¢  
Peter Wright's..... 11¢  
Armstrong's Mouse Hole..... 10¢  
Am. Wrought, Horse shoe brand..... 11¢  
Trenton..... 10¢  
Wilkinson's..... 10¢  
Moore & James Mfg. Co..... 88¢

## Anvil Vise and Drill—

Millers Falls Co., \$18.00..... 20%  
Cheney Anvil and Vise..... 25%  
Allen Anvil and Vise \$3.00..... 40&100  
Star..... 15&25

## Apple Parers—See Parers, Apple, &c.

## Augers and Bits—

Common Augers and Bits..... 70&70 10%  
Boring Machine Augers..... 70&70 10%  
Car Bits, 12 in. twist..... 50%  
Russell Jennings' Augers and Bits..... 25&100  
Jennings' Pattern Car Bits..... 40%  
Jennings' Pattern Auger Bits..... 60%  
Snell's Bits..... 60&50  
C. E. Jennings & Co., No. 10, extension..... 40%  
C. E. Jennings & Co., No. 30..... 60%  
C. E. Jennings & Co., Auger Bits, 1/2 set, 3/4, 1, 1 1/2, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 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1166, 1168, 1170, 1172, 1174, 1176, 1178, 1180, 1182, 1184, 1186, 1188, 1190, 1192, 1194, 1196, 1198, 1200, 1202, 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 1524, 1526, 1528, 1530, 1532, 1534, 1536, 1538, 1540, 1542, 1544, 1546, 1548, 1550, 1552, 1554, 1556, 1558, 1560, 1562, 1564, 1566, 1568, 1570, 1572, 1574, 1576, 1578, 1580, 1582, 1584, 1586, 1588, 1590, 1592, 1594, 1596, 1598, 1600, 1602, 1604, 1606, 1608, 1610, 1612, 1614, 1616, 1618, 1620, 1622, 1624, 1626, 1628, 1630, 1632, 1634, 1636, 1638, 1640, 1642, 1644, 1646, 1648, 1650, 1652, 1654, 1656, 1658, 1660, 1662, 1664, 1666, 1668, 1670, 1672, 1674, 1676, 1678, 1680, 1682, 1684, 1686, 1688, 1690, 1692, 1694, 1696, 1698, 1700, 1702, 1704, 1706, 1708, 1710, 1712, 1714, 1716, 1718, 1720, 1722, 1724, 1726, 1728, 1730, 1732, 1734, 1736, 1738, 1740, 1742, 1744, 1746, 1748, 1750, 1752, 1754, 1756, 1758, 1760, 1762, 1764, 1766, 1768, 1770, 1772, 1774, 1776, 1778, 1780, 1782, 1784, 1786, 1788, 1790, 1792, 1794, 1796, 1798, 1800, 1802, 1804, 1806, 1808, 1810, 1812, 1814, 1816, 1818, 1820, 1822, 1824, 1826, 1828, 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2826, 2828, 2830, 2832, 2834, 2836, 2838, 2840, 2842, 2844, 2846, 2848, 2850, 2852, 2854, 2856, 2858, 2860, 2862, 2864, 2866, 2868, 2870, 2872, 2874, 2876, 2878, 2880, 2882, 2884, 2886, 2888, 2890, 2892, 2894, 2896, 2898, 2900, 2902, 2904, 2906, 2908, 2910, 2912, 2914, 2916, 2918, 2920, 2922, 2924, 2926, 2928, 2930, 2932, 2934, 2936, 2938, 2940, 2942, 2944, 2946, 2948, 2950, 2952, 2954, 2956, 2958, 2960, 2962, 2964, 2966, 2968, 2970, 2972, 2974, 2976, 2978, 2980, 2982, 2984, 2986, 2988, 2990, 2992, 2994, 2996, 2998, 3000, 3002, 3004, 3006, 3008, 3010, 3012, 3014, 3016, 3018, 3020, 3022, 3024, 3026, 3028, 3030, 3032, 3034, 3036, 3038, 3040, 3042, 3044, 3046, 3048, 3050, 3052, 3054, 3056, 3058, 3060, 3062, 3064, 3066, 3068, 3070, 3072, 3074, 3076, 3078, 3080, 3082, 3084, 3086, 3088, 3090, 3092, 3094, 3096, 3098, 3100, 3102, 3104, 3106, 3108, 3110, 3112, 3114, 3116, 3118, 3120, 3122, 3124, 3126, 3128, 3130, 3132, 3134, 3136, 3138, 3140, 3142, 3144, 3146, 3148, 3150, 3152, 3154, 3156, 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3822, 3824, 3826, 3828, 3830, 3832, 3834, 3836, 3838, 3840, 3842, 3844, 3846, 3848, 3850, 3852, 3854, 3856, 3858, 3860, 3862, 3864, 3866, 3868, 3870, 3872, 3874, 3876, 3878, 3880, 3882, 3884, 38



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**Halters—**

Cover's Rope, Jute.....	60&10&10&25
Cover's Rope, 7-10-in. Jute.....	70&25
Cover's Rope, 1/2-in. Hemp.....	50&25
Cover's Adj. Rope Halters.....	40&25
Cover's Hemp Horse and Cattle Tie.....	60&10&25
Cover's Jute Horse Ties.....	70&25
Cover's Jute Cattle Ties.....	70&10&25
Cover's Adj. Web Halters.....	85&25
Cover's Saddlery Works Halters.....	33&10
Cover's Saddlery Works Horse and Cattle Ties.....	89&10
Cover's Saddlery Works Handy Web Halters.....	33&10

**Hammers—**

<b>Handled Hammers—</b>	
Maydole's, list Dec. 1, '88.....	25&10&35
Buffalo Hammer Co.....	
Humason & Beckley.....	50&10
Altha Tool Co.....	
Y. H. H. Co.....	40&10
O. Hammond & Son.....	40&10
Fayette R. Plumb.....	
Artisans' Choice, A. E. Nail.....	40&10
Regular Y. & P. A. E. Nail.....	50
Horseshoe Turning Hammers.....	50
Other Hammers.....	50&10
Cheney's Claw.....	40&10
Cheney's Machine & Riveting.....	50&25
Magnetic Tack, Nos. 1, 2, 3, 4, 5.....	1.50 & 1.75
Nelson Tool Works.....	40&10
Warner & Nobles, new list.....	25&10
Peck, Stow & Wilcox.....	35&40
Sargent's.....	40&10

**Heavy Hammers and Sledges—**

8 lb and under.....	75&10&75&10
10 to 15 lb.....	85
Over 15 lb.....	85
Wilkinson's Sledge.....	10&10&11&10

**Handcuffs and Leg Irons—**

See Police Goods.

**Handles—**

<b>Cross-Cut Saw Handles—</b>	
Atkins', new list.....	40
Champion.....	15
Perfection.....	doz. \$3.00
Sensible.....	40

**Iron, Wrought or Cast—**

No. 1.....	2
No. 2.....	1
No. 3.....	1.50
No. 4.....	1.50
Per doz.....	\$0.90 1.00 1.08 1.35 1.50
Roggin's Latches.....	doz \$0.35
Bronze Iron Drop Latches.....	doz 70¢
Jap'd Store Door Handles—Nuts, 1/2, 3/4, 1, 1 1/2, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100.....	net
Bar Door, 7/8 doz \$1.40.....	10&10
Chain and Lifting.....	70&70&10

**Wood—**

Saw and Plane.....	40&10&50
Hammer, Hatchet, Axe, &c.....	40&40&50
Brad Axi.....	gr \$2.00
Hickory Firmer Chisel, ass'd.....	gr 5.00
Hickory Firmer Chisel, large.....	gr 5.00
Apple Firmer Chisel, ass'd.....	gr 6.00
Apple Firmer Chisel, large.....	gr 6.00
Socket Firmer Chisel, ass'd.....	gr 6.00
Socket Framing Chisel, ass'd.....	gr 5.00
J. B. Smith & Co.'s Pat File.....	50
File, assorted.....	gr 5.00
Auger, assorted.....	gr 5.00
Auger, large.....	gr 7.00
Pat. Auger, Ives.....	30&10
Pat. Auger, Douglass.....	set \$1.25
Pat. Auger, Swan's.....	set \$1.00
Hoe, Rake, Shovel, &c.....	60&60&25

**Hangers—**

Bar Door, old patterns.....	70&70&5
Bar Door, New England.....	70&70&5
Samson Steel Anti-Friction.....	55
Orleans Steel.....	55
Hamilton Wrought Steel Track.....	55
Champion.....	60&10
Climax Anti-Friction.....	55
Zenith for Wood Track.....	55
Sterling.....	50&10&60
Victor, No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00.....	50
Kidder's.....	50&10&60
Best Anti-Friction.....	60&10&60&10&5
Duplex (Wood Track).....	60&10&60
Terry's Modern.....	50&10&60&10&5
Terry's Ideal.....	50&10&60&10&5
Terry's Solid.....	50&10&60
Terry's Shield.....	50&10&60
Terry's Wrought Single Strap.....	50&10
Cronk's Patent, Steel Covered.....	50&10
Carrier Steel Anti-Friction.....	50&10
Richards.....	30&30&10
Lane's New Standard.....	50&50&5
Lane's Standard.....	50&50&5
Lane's Parlor.....	50
Warner's Pat.....	20&10&10
Stearns' Anti-Friction.....	20&10&10
Stearns' Challenge.....	25&10&10
Cincinnati Nos. 1, \$2.25; 3, \$2.50; 4, \$2.80.....	25
Paragon, Nos. 5, 6, 7 and 8.....	20&10
Crescent.....	60&60&10
Nickel, Steel, Nos. 0, \$2.50; 1, \$2.00; 2, \$1.50.....	40&10&60
Chicago Anti-Friction.....	40&10&40&10&5
Star.....	40&10&40&10&5
Barry.....	30&10
Interstate.....	60&10&60
Pendulum, Payson's.....	40&40&10
Woody.....	45
Economy, \$6.00.....	60&10
Perfection.....	50&10&50&10&5
Lundy, Steel Parlor.....	40
Matchless.....	50&10
Magie.....	45&10
Wild West.....	40&10
Moore's Elevator.....	33&10
Moore's Baggage Car Door.....	33&10
Moore's Railroad.....	55

**Harness Snaps—See Snaps.****Hatchets—**

American Axe and Tool Co.	
Blood's.....	
Hunt's.....	
Hurd's.....	
Mann's.....	
Peck's.....	
Underhill's.....	40 & 10
Buffalo Hammer Co.....	@
Fayette R. Plumb.....	50&5
O. Hammond & Son.....	
Kelly's.....	
Sargent's & Co.....	
P. S. & W. Co.....	
Ten Eyck Edge Tool Co.....	10
Collins.....	
Schultz, Lokoff & Co.....	50&5&5

**Hay and Straw Knives—**

See Knives.

**Hinges—****Blind Hinges—**

Parker.....	75&10
Huffer.....	50
Clark's, Nos. 1, 3, 5, 40 and 50.....	80&80&5
Clark's Mortise Gravity.....	50
Sargent's, Nos. 1, 3, 5, 11, 12, 13, 75&10	
Reading's Gravity.....	75&10&75&10&5
Shepard's.....	
Nobles.....	75&10
Niagara.....	80
Buffalo.....	80
Clark's Genuine Pattern.....	80
O. S. Lull & Porter.....	75&10
Acme, Lull & Porter.....	75
Queen City Reversible.....	70&10&50
Clark's, Lull & Porter, Nos. 0, 1, 1 1/2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50.....	75&10
North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....	10

**Gate Hinges—**

Western.....	doz \$4.20, 60&60&10
N. E.....	doz \$7.80, 60&60&10
E. Reversible.....	doz \$5.50, 60&60&10
Clark's, Nos. 1, 2, 3.....	60&10&5
N. Y. State.....	doz \$4.90, 60&60&10
Automatic.....	doz \$12.50, 50
Shepard's.....	60&10&5

**Spring Hinges—**

Geer's Spring and Blank Butts.....	40
Union Spring Hinge Co.'s list.....	
March, 1888.....	20
Barker's Double Acting.....	25
Union Mfg. Co.....	25
Bommer's.....	30
Buckman's.....	16&20
Chicago.....	30
Bardeley's Patent Checking.....	15
Acme.....	30
U. S.....	25&10
Empire and Crown.....	20
Hero and Monarch.....	55
American, Gem and Star.....	20
Royal.....	65
Reliable.....	60
Champion.....	60
No. 10 Matchless.....	60
No. 25 Unbreakable.....	60
J. G. C. Covered, 3/4 gro.....	50&5
Samson.....	60&7
Wiley, No. 1.....	13
Devore, No. 1.....	13
Rex.....	13
Prepreat.....	12
New Idea Nos. 1 and 10.....	13
New Idea Dbl. Acting.....	45
Ideal No. 3.....	10
Stearns' Noiseless Floor Hinge.....	set \$5.00
Wiley's Noiseless Floor Hinge.....	20&10&30

**Wrought Iron Hinges—**

## Wrought Iron Hinges—

List February 14, 1891.....	
Strap and T.....	50&10@50&10&5
Corrugated Strap and T.....	50&10&5
Screw Hook and Eye.....	8 to 12 in. 3/4, 1, 1 1/2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50.....
Strap.....	22 to 36 in. 3/4, 1, 1 1/2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50.....
Screw Hook and Eye.....	1/4 in. 3/4, 1, 1 1/2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50.....
Roller Blind Hinges, Nos. 32 and 34.....	50&10
Roller Blind Hinges, Nos. 252 and 234.....	55&10
Roller Plate.....	70&10
Roller Raised.....	70&10
Plate Hinges 8, 10 and 12 in.....	5
"Providence" over 12 in.....	4

**Hoes—****Eye—**

D. & H. Scovill.....	20
Lane's Crescent Planter's Pattern.....	45&5
Lane's Razor Blade, Scovill Pattern.....	30
Maynard, S. & O. Pat.....	45&5
Sandusky Tool Co., S. & O. Pat.....	40&5
Am. Axe and Tool Co., S. & O. Pat.....	40&10
Pat.....	60&10
Chattanooga Tool Co., S. & O. Pat.....	60&10
Grub.....	60&10

**Handled—**

Garden, Mortar, &c.....	70&70&5&25
Planter's, Cotton, &c.....	70&70&5
Warren Hoe.....	60&60&5
Magie.....	doz \$4.00

**Hog Rings and Ringers—**

See Rings and Ringers.

**Hoisting Apparatus—**

See Machines, Hoisting.

**Hollow-Ware—**

See Ware, Hollow.

**Holders—****Bag—**

Sprengle's Pat.....	doz \$18..... 60
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**Bit—**

Extension.....	doz \$15.00..... 40&40&10
Ives.....	doz \$20.00..... 60&5&60&10
Diagonal.....	doz \$24.00..... 40
Angular.....	doz \$24.00..... 40&5

**File and Tool—**

Bals Pat.....	doz \$4.00, 25
Nicholson File Holders.....	20

**Sash—**

Motley's Adj. Sash, Medium Size.....	doz \$1.30, 40
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**Hooks—****Cast Iron—**

Bird Cage, Sargent's List.....	
Bird Cage, Reading.....	60&10&10
Clothes Line, Sargent's list.....	
Clothes Line, Moore's.....	70

**Clothes Line, Reading list.**

Coffing, Sargent's list.....	60&10&60&10&10
Harness, Reading list.....	55&10&10
Coat and Hat, Sargent's list.....	55&10&60&10
Coat and Hat, Reading.....	60&10&60&10&10
Coat and Hat, Moore's.....	70

**Wrought Iron—**

Cotton.....	doz \$1.25
Cotton Pat. (N. Y. Mallet and Handle).....	30
Tassel and Picture, T. & S. Mfg. Co.....	50
Wrought Staples Hooks, &c.....	See Wrought Goods

**Wire—**

Wire Coat and Hat, Gem, list April, 1888.....	60&60&10
Wire Coat and Hat, Miles, list April, 1888.....	50&50&10
Indestructible Coat and Hat.....	45&45&5
Wire Coat and Hat, Standard.....	60&60&10
Handy Hat and Coat.....	50&10&60
Steady Ceiling Hooks.....	50&10&60
Belt.....	80&15&80&20
Atlas, Coat and Hat.....	65
Whitson's Bird Cage Hooks, list April, 1892.....	40
Bright Wire Goods—See Wire.....	

**Miscellaneous—**

Grass, No. 2, \$2.00; No. 3, \$2.10; No. 4, \$2.25.....	
Nolin's Grass.....	doz \$2.25
Bush.....	55&60
Whitmetree—Patent.....	55
Hooks and Eyes—Malleable Iron.....	70&70&10
Hooks and Eyes—Brass.....	60&10&10
Fish Hooks, American.....	50
Bench Hooks—See Bench Stops.....	

**Horse Nails—See Nails, Horse****Horse Shoes—**

See Shoes, Horse.

**Hose, Rubber—**

Competition, Fair quality.....	75&75&10
Competition, Low Grade.....	50&80&10
Standard.....	70&10&70&10&5
Extra.....	60&10&60&10&10
N. Y. B. & P. Co., Para.....	25&5
N. Y. B. & P. Co., Extra.....	40&5&50
N. Y. B. & P. Co., Pundee.....	60&60&5
Cotton Garden, 1/2 in. coupled.....	70
Fair Quality, 1/2 in.....	70
Good Quality, 1/2 in.....	80

**Huskers—**

Blair's Adjustable.....	gr \$8.00
Blair's Adjustable Clipper.....	gr 7.00
Hubbard's Solid Steel.....	gr 4.50

**Indurated Fiber Ware—**

See Ware, Indurated Fiber.

**Irons.****Sad—**

From 4 to 10, at factory.....	\$100 D.
Self-Heating.....	\$2.30&2.40
Self-Heating Tailors.....	doz \$18.00
Mrs. Potts' Sad Irons, per set.....	
No. 50.....	55
No. 55.....	60
No. 60.....	65
Small lots.....	90 85 1.05 95
Crown.....	60&10&60&10&5
Ideal Irons, new list.....	50&10&50&10&10
Salamander Irons.....	25
B. B. Sad Irons, 1/2 in.....	30&34
Chinese Laundry (N.E. Butt Co.), 3/4, 1 1/2, New England.....	50
Mahony's Troy Pol. Irons.....	25
Sensible, list Jan. 91.....	50&10&5
Sensible Tailors' Irons.....	33
National Self-Heating.....	30

**Soldering—**

Soldering Coppers.....	\$ D 19&21
Cover's Adjustable, list Jan. 1, 1886.....	35&25

**Tinker's Dread.....**

doz \$1.75; gr \$18

**Pinking—**

**Brittan, Graham & Mathes, list Jan. 1890.**  
 1800.....60&10&10%  
 Plate.....33&2%  
 Barnes Mfg. Co.....40&40&10%  
 Delta Flat Key Latches.....15%  
 Yale.....net prices  
 Delta Flat Key Latches.....30%  
 Bomer's Night Latches.....50&10%  
 Brooklyn Latches.....50&10%  
 Warner's Burkar Proof. # doz. \$8.00, 50%  
**Elevator—**  
 Moore's.....33&2%

**Padlocks—**  
 List June 10, 1891.....50&2%  
 Norwich Lock Mfg. Co., old list.....50&2%  
 Yale Lock Mfg. Co.'s.....net prices  
 Yale.....40%  
 Eureka, Eagle Lock Co.....40&2%  
 Bomer's Nos. 0 to 81.....30%  
 Bomer's Scandinavian, &c., Nos. 100 to 505.....15%  
 A. R. Delta.....40%  
 Champion Padlocks.....40%  
 Hotchkiss.....30%  
 Star.....40%  
 Horseshoe.....# doz \$9.50, 50&10%  
 Barnes Mfg. Co.....40&40&10%  
 Rock's.....30%  
 Scandinavian.....90&40%  
 J. F. Falm's Keystone Scandinavian, Nos. 119, 120, 130 and 140.....90&10%  
 Other Nos.....60%  
 Ames Sword Co. up to No. 150.....40%  
 Ames Sword Co. above No. 150.....50%  
 Maymaker, Barry & Co.  
 No. 1010 line.....90&5%  
 No. 41 line.....60%  
 No. 61 line.....60%  
 No. 81 line.....60%

**Sash, &c.—**  
 Clark's No. 1, \$10; No. 2, \$8 # gr.....33&2%  
 Ferguson's.....33&2%  
 Walker's.....60&10&2%  
 Vicksburg.....10%  
 Attwell Mfg. Co.....25&33&2%  
 Reading.....60&10&60&10&10%  
 Hammond's Window Springs.....40%  
 Common Sense, Jap'd, Cop'd and Br'd.....# gr \$4.00  
 Common Sense, Nickel Plated.....# gr \$10.00  
 Universal.....30%  
 Kempshall's Gravity.....60%  
 Kempshall's Model.....60&60&10%  
 Corbin's Daisy, list Feb. 15, 1888.....70%  
 Payson's Perfect.....60&10&10%  
 Huginn's Sash Balances.....25&33&2%  
 Huginn's New Sash Locks.....25&33&2%  
 Ives Patent.....60&10&60&10&10%  
 Fish (Liesche's pat.), No. 100, # gr, \$8.....50%  
 No. 105, # gr, \$10.....50%  
 Davis, Bronze, Barnes Mfg. Co.....60%  
 Champion Safety list January, 1893, 70&5%  
 Security.....70%  
 Giant, list Jan. 1892.....70%  
 Wolcott's.....60&10&5%  
 Monarch.....60%

**Lumber Tools—**  
 See Tools, Lumber.  
**Lustro—**  
 Four-ounce bottles.....# doz, \$1.75; # gross.....\$17.00

**Machines.**  
**Boring—**  
 Without Augers. Upright, Angular.  
 Douglas.....\$5.50 \$8.75.....60%  
 Snell's, Rice's Pat.....5.50 6.75, 40&10&10%  
 Jennings.....5.50 6.75, 45&50&10%  
 Other Machines.....2.35 2.75.....60%  
 Phillips' Patent  
 With Augur.....7.00 7.50.....25%  
 Carter's.....7.50.....25%  
 Boss, Carpenters' 3.00  
 Boss, Ship Builders' 3.35

**Fluting—**  
 1/2 in., 4 1/2 in. Rolls.....\$3.25 each } 35%  
 Knox, 6 in. Rolls.....\$3.80 each }  
 Eagle, 3 1/2 in. Rolls, \$2.15.....35%  
 Eagle, 5 1/2 in. Rolls, \$2.35.....35%  
 Crown, 4 1/2 in., \$3.50; 6 in., \$4.00; 8 in., \$4.50 each.....35%  
 American, 5 in., \$3.00; 6 in., \$3.40; 7 in., \$4.00 each.....35%  
 Domestic Fluter.....each, \$1.50  
 Geneva Hand Fluter, White, Veta.....# doz \$12.25  
 Crown Hand Fluter, No. 1, \$15.00; 2, \$12.50; 3, \$10.00; 4, \$8.25.....30%  
 Shepard Hand Fluter, No. 85, per doz \$15.50.....40%  
 Shepard Hand Fluter, No. 110, # doz \$11.00.....40%  
 Shepard Hand Fluter No. 95, # doz \$8.00.....40%  
 Combined Fluter and Sad Iron.....# doz \$15.00.....30%

**Holsting—**  
 Moore's Hand Holst, with Lock Brake, 20%  
 Moore's Anti-Friction Differential Pulley Block.....20%  
 Moore's Rope Differential Pulley Block.....80%  
 Energy Mfg. Co.'s.....25%  
 See also Blocks.

**Washing—**  
 Anthony Wayne, # doz, No. 1, \$42; No. 2, \$36; No. 3, \$42.....# doz \$36.00  
 Wayne American.....# doz \$36.00  
 Western Star # doz, No. 2, \$36; No. 3, \$30.....# doz \$54.00  
 Fair and Square.....# doz \$42.00

**Mallets—**  
 Hickory.....20&10&20&10&10%  
 Limonvite.....20&10&20&10&10%  
 E. & L. Block Co., Hickory & L. V.....30&30&10  
**Mattocks—Regular list.**  
 60&10&60&10&10%

**Measures—**  
 Standard Fiberware, No. 1, peck # dozen, \$8.50; 1/2 peck, \$8.00  
**Meat Cutters—**  
 See Cutters, Meat  
**Menders, Harness—**  
 Per doz.....\$2.00  
**Milk Cans—See Cans, Milk.**

**Mills—**  
**Coffee—**  
 Box and Side, list Jan. 1, 1883. 40&60&5%  
 Net prices are often made, which are lower than above discount.  
 American, Enterprise Mfg. Co., list Jan. 17, 1893.....20%  
 The Swift, Lane Bros.....30%  
 Waddell's New Box Mills, Ideal Brand, New List.....60%

**Mincing Knives—**  
 See Knives, Mincing.  
**Molasses Gates—**  
 See Gates, Molasses.  
**Money Drawers—**  
 See Drawers, Money.  
**Mowers, Lawn—**  
 Best Machines: 10-in., \$4; 12-in., \$4.50; 14-in., \$5; 16-in., \$5.50; 18-in., \$6.  
 Low-Grade Machines:  
 10-in., \$3; 12-in., \$3.25 14-in., \$3.50 each

**Muzzles—**  
 Safety.....# doz, \$3.00, 25%  
**Nails—**  
 Cut and Wire. See Trade Report.  
 Wire Nails, Papered.  
 Association list, May 1, 1928, 80&10&10&5%  
 Tack Mfrs' list.....70&5&70&10%  
 Hungarian, Finishing, Upholsterers', &c. See Tacks.  
**Horse—**  
 Nos. 8 7 8 9 10  
 American.....9% 9% 9% 9% 9%.....net  
 Ausable.....28% 28% 25% 24% 23%  
 Clinton, Fin.....19% 17% 16% 15% 14%  
 Essex.....28% 28% 25% 24% 23%  
 Lyra.....9% 9% 9% 9% 9%.....net  
 Snowden.....9% 9% 9% 9% 9%.....net  
 Vulcan.....23% 21% 20% 19% 18%.....25%  
 Northwest.....25% 23% 22% 21% 20%  
 A. C.....25% 23% 22% 21% 21%  
 C. B. K.....25% 23% 22% 21% 21%  
 Maud S.....25% 23% 22% 21% 21%  
 Champlain.....28% 26% 25% 24% 23%  
 Champion.....25% 23% 22% 21% 20%  
 Capewell.....19% 18% 17% 16% 16%  
 Anchor.....23% 21% 20% 19% 18%  
 Eastern.....23% 21% 20% 19% 18%  
 Empire Bronzed.....13&14 %

**Nails—**  
 Cut and Wire. See Trade Report.  
 Wire Nails, Papered.  
 Association list, May 1, 1928, 80&10&10&5%  
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 Capewell.....19% 18% 17% 16% 16%  
 Anchor.....23% 21% 20% 19% 18%  
 Eastern.....23% 21% 20% 19% 18%  
 Empire Bronzed.....13&14 %

**Picture—**  
 Brass Head, Sargent's list.....60&60&10%  
 Brass Head, Combination list.....50&10%  
 Porcelain Head, Sargent's list.....50&10&10%  
 Porcelain Head, Combination list.....40&10%  
 Niles' Patent.....40%  
**Nail Pullers—See Pullers, Nail.**  
**Nail Sets—See Sets, Nail.**  
**Nut Crackers—**  
 See Crackers, Nut.  
**Nuts—List Dec. 18, 1889.**  
 Hot Pressed.....Square, Hex.  
 Cold Punched.....5.00 5.10 off list  
 In packages of 100 lb, add 1-10% off list  
 net; in packages less than 100 lb, add 1-6% # net.

**Oakum—**  
 Best or Government.....# d 63&74%  
 U. S. Navy.....# d 54%  
 Navy.....# d 54%  
**Oil Tanks—See Tanks, Oil.**  
**Oilers—**  
 Zinc and Tin.....65&10&70&5%  
 Brass and Copper.....50&10&50&10&10%  
 Malleable, Hammers' Improved, No. 1, \$3.50; No. 2, \$4.00; No. 3, \$4.40 # doz.  
 Malleable, Hammers' Old Pattern, same list.....45%  
 Prior's Pat. or "Paragon" Zinc.....60&10&10%  
 Prior's Pat. or "Paragon" Brass.....60%  
 Olmstead's Tin and Zinc.....60%  
 Olmstead's Brass and Copper.....60%  
 Broughton's Zinc.....60%  
 Broughton's Brass.....50%  
 Steel, Draper & Williams.....60%

**Openers, Can—**  
 Messenger's Comet.....# doz \$3.00, 25%  
 American.....# gross \$2.75, \$3.00  
 Duplex.....# doz \$2.50, 15&20%  
 Lyman's.....# doz \$3.75, 20%  
 No. 4, French.....# doz \$2.25, 55&60%  
 No. 5, Iron Handle.....# gr \$6.00, 45&50%  
 Eureka.....# doz \$2.50, 10%  
 Sardinia Scissors.....# doz \$2.75, \$3.00  
 Sprague, No. 1, \$2.00; 2, \$2.25; 3, \$2.50; 4, \$2.75  
 Excelsior, No. 1 \$2.50; No. 2, \$1.50.....40%  
 World's Best # gross, No. 1, \$12.00; No. 2, \$24.00; No. 3, \$36.00.....50&10%  
 Universal, # doz \$3.00.....55&55%  
 Domestic, # doz \$2.00.....45%  
 Champion, # doz \$2.00.....50%  
 Moore's.....# doz \$2.00.....70%

**Packing, Steam—**  
 Rubber—  
 Standard.....70&70&10%  
 Extra.....80&80&25%  
 N. Y. B. & P. Co., Standard.....60%  
 N. Y. B. & P. Co., Empire.....60%  
 N. Y. B. & P. Co., Salsander.....25%  
 Jenkins' Standard, # d 804.....25&25%  
**Miscellaneous—**  
 American Packing.....10¢ 31¢ # d  
 Russia Packing.....14¢ # d  
 Italian Packing.....13¢ # d  
 Cotton Packing.....15¢ # d  
 Iron.....7¢ # d

**Pails—**  
 Creamery—  
 S. S. & Co., 18-qt., \$7.00; 20-qt., \$7.25 per doz.....5 %

**Galvanized—**  
 Curta 10 12 14  
 Hill's Light Weight, # doz, \$2.75 8.00 8.25  
 Hill's Heavy Weight, # dr. 8.00 8.25 8.75  
 Helwig's.....2.50 2.75 3.00  
 Sidney Shepard & Co.....2.50 2.75 3.00  
 Iron Clad.....2.50 2.75 3.00  
 Fire Buckets.....2.75 3.25 3.50  
 Buckets—See Well Buckets.

**Indurated Fiber Ware—25%**  
 Star Pails, 12 qt.....# doz \$4.20  
 Milk, 14 qt.....# doz \$5.40  
 Stable, 14 qt.....# doz \$4.60  
 Fire Pails, deep.....# doz \$4.80  
 Fire Pails, round bottom.....# doz \$5.40

**Standard Fiber Ware—**  
 Water Pails, 12 qt., # doz, \$3.15 \$3.75  
 Dairy Pails, 14 qt., # doz, 3.75 4.25  
 Fire Pails, No. 1, 12 qt., # doz, 3.75 4.25  
 Fire Pails, No. 2, 14 qt., # doz, 4.25 4.50  
 Sugar Pails.....5.50 6.00  
 Eureka Pails.....4.50 5.00  
 Buggy Pails.....8.50  
 Slop Jars (bal. trap).....7.50 8.50  
 Chamber Pails, 14 qt.....6.00 7.00

**Pans—**  
 Dripping—  
 Small sizes.....# d 5 1/2  
 Large sizes.....# d 5 1/2  
 Silver & Co. (Covered).....40%  
**Fry—**  
 Standard List:  
 No.....0 1 2 3 4  
 No.....\$3.75 \$4.25 4.75 \$5.25  
 No.....5 6 7 8 9  
 # doz.....\$6.00 \$7.00 \$8.00 \$9.00  
 Polished, regular goods.....75&75&10%  
 Acme Fry Pans.....60&4%

**Dust—**  
 Steel Edge, No. 1.....# doz \$1.75  
**Roasting and Baking—**  
 Columbian, S. S. & Co.: Nos. 10, \$2; 20, \$2.25; 30, \$2.50 each.....60&10%

**Paper and Cloth—**  
 Sand and Emery—  
 List April 19, 1888.....50&10&50&10&10%  
 Sibley's Emery and Crocus Cloth.....30%

**Parers—**  
 Apple—  
 Advance.....# doz \$4.75  
 Baldwin.....# doz 5.25  
 Bonanza.....each 5.00  
 Daisy.....# doz 4.00  
 Dandy.....each 7.50  
 Eclipse.....# doz 4.25  
 Eureka, 1888.....each 16.00  
 Family Bay State.....# doz 12.00  
 Favorite.....# doz 5.00  
 Gold Medal.....# doz 4.00  
 Ideal.....# doz 4.00  
 Improved Bay State.....# doz 27.00, \$30.00  
 Little Star.....# doz 4.50  
 Monarch.....# doz 13.50  
 New Lightning.....# doz 5.50  
 Oriole.....# doz 4.00  
 Penn.....# doz 4.00  
 Perfection.....# doz 4.00  
 Pomona.....# doz 4.00  
 Rocking Table.....# doz 6.00  
 Turn Table.....# doz 4.50  
 Victor.....# doz 13.50  
 Waverly.....# doz 4.00  
 White Mountain.....# doz 4.00  
 72.....# doz 4.25  
 73.....# doz 7.00

**Potato—**  
 White Mountain.....# doz \$4.50  
 Antrim Combination.....# doz \$5.50  
 Hoosier.....# doz \$3.50  
 Saratoga.....# doz \$5.50

**Pencils—**  
 Faber's Carpenters'.....high list 50%  
 Faber's Round Gilt.....# gro \$5.25  
 Dixon's Lead.....# gro \$4.50  
 Dixon's Lumber.....# gro \$6.75  
 Dixon's Carpenters'.....10%

**Pencils, Soapstone—**  
 See Crayons.  
**Pickers, Fruit—**  
 Prize Fruit Pickers.....50%

**Picks—**  
 Railroad or Adze Eye, 5 to 6, \$12.00; 6 to 7, \$13.00.....60&10&60&10&10%  
**Picture Nails—**  
 See Nails, Picture.  
**Pinking Irons—**  
 See Irons, Pinking.  
**Pins—**  
 Humason, Beckley & Co.'s.....60&10%  
 Sargent & Co.'s, \$17 and \$18.....60&10%  
 Peck, Stow & W. Co.....60&10&50&10&5%

**Curtain—**  
 Silvered Glass.....net  
 White Enamel.....net  
**Escutcheon—**  
 Iron, list Nov. 11, 1885. 60&10&50&10&5%  
 Brass.....60&60&5%

**Pipe, Wrought Iron—**  
 List April 13, 1893.  
 1 1/2 and under, Plain.....57¢&10%  
 1 1/2 and under, Galv.....57¢&10%  
 1 1/2 and over, Plain.....67¢&10%  
 1 1/2 and over, Galv.....67¢&10%  
 Boiler Tubes, list Oct. 24, 1892.....65¢&10%  
 Casing, list Nov. 16, 1892.....52¢&10%  
 Inserted joints Casing, list Nov. 16, 1892.....52¢&10%  
 Steel Bolt Tubes.....47¢&5%  
 Cold Drawn Seamless Steel Tubing.....50%

**Planes and Plane Irons—**  
 Wood Planes—  
 Molding.....40&40&10%  
 Bench, First quality.....45&45&10%  
 Bench, Second quality.....50&50&10%  
 Bailey's (Stanley R. & L. Co.).....50&10%  
 Bailey's Planes.....50&10%  
 Miscellaneous Planes (Stanley R. & L. Co.).....25&10%  
 Meriden Mal. Iron Co.'s.....50&50&5%  
 Davis' Iron Planes.....50&50&5%  
 Birmingham Plane Co.'s.....50&50&5%  
 Gage Tool Co.'s Self-Setting.....50&50&5%  
 Chaplin's Iron Planes.....50&50&5%  
 Sargent's.....60&60&10%  
 Standard Tool Co.....50&50&5%

**Plane Irons—**  
 Butcher's.....\$5.00&5.25 to 50  
 Buck Bros.....80

Auburn Thistle.....} 30&10&30&10&10%  
 Ohio.....} 30&10&30&10&10%  
 Sandusky.....} 30&10&30&10&10%  
 L. & J. White.....} 30&10&30&10&10%  
 Stanley R. & L. Co.....50&10%  
**Plates—**  
 Felloe.....# d 60&50%

**Pliers and Nippers—**  
 Button's Patent.....# doz \$2.00, 5 in., \$13.50; No. 4, 7 in., \$21.00 # doz  
 Humason & Beckley Mfg. Co., 50&50&10%  
 Lindsay's Giant.....50%  
 Gas Pliers.....60%  
 Gas Pliers, Custar's Nickel Plated.....60&5%  
 Eureka Pliers and Nippers.....40%  
 Russell's Parallel.....20%  
 P. S. & W. Cast Steel.....50%  
 P. S. & W. Tinner's Cutting Nippers.....40%  
 Add 6%  
 Carew's Pat. Wire Cutters.....30%  
 Morrill's Parallel, # doz, \$12.00.....30&25%  
 Cronk's 8 in., \$15.00; 10 in.....30%  
 Cronk's Union Pattern.....50&10&50%  
 Cronk's Carrier Pliers.....60&60&5%

**Plumbs and Levels—**  
 Regular List.....75&10&75&10&5%  
 Stanley's Duct.....20&10%  
 Stanley's Handy.....30&10%  
 Disston's.....50%  
 Cook's.....40&10%  
 Pocket Levels.....70&10&70&10&10%  
 Davis Iron Levels.....30%  
 Davis Inclinationers.....10&10%

**Poachers, Egg—**  
 Buffalo Steam Egg Poachers, # doz, No. 1, \$6.00; No. 2, \$9.00.....35&4%  
 Silver & Co., 6-Ring, # doz, \$4.00, 3-Ring.....\$2.00

**Pokes, Animal—**  
 Bishop's I. X. L.....# doz \$6.00  
 Bishop's Monarch.....# doz \$4.50  
 Bishop's Pioneer.....# doz \$4.00  
 Bishop's American.....# doz \$3.00  
 Eagle, Double Stale.....# doz \$5.75  
 Eagle, Single Stale.....# doz \$3.75  
 Buckeye, Single Stale.....# doz \$3.75  
 Holding.....# doz \$6.00  
 Metallic Horse Poke.....# doz, \$2.00

**Police Goods—**  
 R. I. Tool Co., Handcuffs, \$15.00 # doz 10%  
 R. I. Tool Co. Leg Irons, \$25.00 # doz 10%  
 Towler's.....25%  
 Daley's Improved Handcuffs; 3 Hands, Polished, # doz, \$48.00; Nickle, \$57.00; 3 hands, Polished, # doz, \$72.00; Nickle, \$84.00.....25%  
 J. P. Lovell's Police Goods.....25%

**Polish—**  
 Metal—  
 Prestoline.....30%  
 Gaston's Silver Compound.....35&4%

**Stove—**  
 Joseph Dixon's.....# gro, \$6.00, 10%  
 Gem.....# gro, \$4.50, 10%  
 Gold Medal.....# gro, \$3.00, 25%  
 Lustron.....# gro, \$4.75  
 Ruby.....# gro, \$3.75  
 Rising Sun, 6 gro lots.....# gro \$5.50  
 Dixon's Plumbago.....# d \$2  
 Boynton's Noon Day.....# gro \$13.00  
 Parlor Pride Stove Enamel, 2 # doz, Yates' Liquid, 2 10 gal  
 # gal.....\$0.80 70 80 50  
 Yates Standard Paste Polish, 10 lb cans.....12&4%  
 Jet Black.....# gro \$3.50  
 Japanese.....# gro \$3.50  
 Fireside.....# gro \$2.50  
 Diamond O. K. Enamel.....# gro \$1.00  
 Bonnell's Liquid Stove Polish, # gro \$2.00  
 Bonnell's Paste Stove Polish, # gro \$6.00  
 Black Eagle Benzine Paste, 5 and 10 lb cans.....13&4%  
 Black Jack Water Paste, 5 and 10 lb cans.....12&4%  
 Nickel Plate Paste.....# gro \$6.00  
 Crown Paste.....# gro \$7.50  
 Crown Paste in 5 and 10 lb pails, # d 12%  
 Black Flag.....# gro \$7.50  
 Black Flag, 5 and 10 lb pails.....# d 12%  
 Black Flag, Liquid, in bottles, # gro \$3.00  
 Diamond Rock Nickel Cleaner.....# gro \$1.50

Raven Liquid, 6 oz. bottles.....# gro \$5.00  
 Raven Liquid, 8 oz. bottles.....# gro \$9.00  
 Raven Water Polish, large boxes.....# gro \$7.20  
 Raven Paste in 5 lb. pails (cases of 6 pails), # d 10%

**Poppers, Corn—**  
 Round or Square,  
 1 qt.....# doz \$1.00; # gr \$8.00  
 1 1/2 qt.....# doz \$1.00; # gr \$8.00  
 2 qt.....# doz \$1.50; # gr \$14.00

**Post Hole and Tree Augers and Diggers—**  
 See Diggers, Post Hole, &c.  
**Potato Parers—**  
 See Parers, Potato.  
**Pots—**  
 Glue—  
 Fine Sporting, 1 lb each.....0.90  
 Duck, 1 lb each......30  
 Rifle, 1 lb each......30  
 Rifle, 1/2 lb each......18

**In Kegs—**  
 Rifle, 25-lb kegs.....\$3.50  
 Rifle, 12 1/2-lb kegs.....2.00  
 Rifle, 6 1/2-lb kegs.....1.15  
 Duck, 25-lb kegs.....11.00  
 Duck, 12 1/2-lb kegs.....6.75  
 Duck, 6 1/2-lb kegs.....3.00

**Presses—**  
 Fruit and Jelly—  
 Enterprise Mfg. Co.....25%  
 Family, Howe's Eureka.....40%  
 Family, L. F. C.'s "Handy".....30%  
**Powder—**  
 In Canisters—  
 Fine Sporting, 1 lb each.....0.90  
 Duck, 1 lb each......30  
 Rifle, 1 lb each......30  
 Rifle, 1/2 lb each......18

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 Rifle, 25-lb kegs.....\$3.50  
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 Fine Sporting, 1 lb each.....0.90  
 Duck, 1 lb each......30  
 Rifle, 1 lb each......30  
 Rifle, 1/2 lb

**Pullers, Nail-**

Scranton..... \$ doz., \$18.00, 38 1/2  
Giant, No. 1..... \$ doz., \$18.00, 10 1/2  
Giant, No. 2..... \$ doz., \$15.00, 10 1/2  
Pelican..... \$ doz., \$9.00, 25 1/2  
Eclipse..... \$ doz., \$2.00, net  
Economy..... \$ doz., \$6.00

**Pulleys-**

Hot House, Awning, &c..... 66 1/2@70 1/2  
Japanned Screw..... 60@102 1/2  
Japanned Side..... 60@102 1/2  
Moore's Side, Anti-Friction..... 50 1/2  
Moore's Ceiling or End, Anti-Friction 40 1/2  
Moore's Dumb Waiter, Anti-Friction 50 1/2  
Moore's Electric Light..... 38 1/2  
Japanned Clothes Line..... 60@102 1/2  
Hay Fork, Solid Eye, \$4.00; Swivel, \$4.60..... 50@102 1/2  
Hay Fork, "Anti-Friction," 6 in. solid, \$5.70..... 50 1/2  
Hay Fork, "P." Common and Patent Pushed..... 20 1/2  
Hay Fork, Tarbox Pat. Iron..... 20 1/2  
Hay Fork, Reed's Self-Lubricating..... 60 1/2  
Hay Fork, Moore's Anti-Friction 6 in. Wheel, \$ doz., \$12.00..... 40 1/2  
Hay Fork, "P." Common and Patent Pushed..... 20 1/2  
Tackle Blocks-See Blocks.  
Shepard's Niagara, No. 25, \$ doz 23 1/2 net (Auger Mortise).  
Common Sense..... 60 1/2  
Empire..... 60 1/2  
Ideal, Nos. 2, 4, 10 & 15, 30% less 1 1/2 \$ doz. net.  
Star..... 60 1/2  
On bbl. lots extra 5%  
Ideal, Nos. 25 and 55, \$ doz. 22 1/2 net.

**Pumps-**

Oldern, Best Makers..... 60@90@104  
Pitcher Spout, Best Makers..... 67 1/2@70 1/2  
Pitcher Spout, Cheaper G'ds. 75@75@104

**Punches-**

Saddler's or Drive, good..... \$ doz., 60@65 1/2  
Bemis & Call Co.'s Cast Steel Drive, 50@55 1/2  
Bemis & Call Co.'s Springfield Socket, 65 1/2  
Spring, good quality..... \$ doz., \$2.50, \$2.60  
Spring, Leach's Pat..... 15 1/2  
Bemis & Call Co.'s Spring..... 50@55 1/2  
Bemis & Call Co.'s Check..... 50 1/2  
Solid Tinnars', P. S. & W. Co., \$ doz., \$1.44..... 55 1/2  
Tinnars' Hollow Punches, P. S. & W. Co..... 20@24 1/2  
Rice Hand Punches..... 15 1/2  
Avery's Revolving..... 40 1/2  
Avery's Sawcut and Punch..... 40 1/2  
Niagara Hollow Punches..... 20@24 1/2  
Niagara Solid Punches..... 55 1/2

**Rail-**

Sliding Door, Wrt Brass..... \$ doz., 35 1/2, 40 1/2  
Sliding Door, Pinned Wrt Iron..... \$ doz., 16 1/2, 17 1/2  
Sliding Door, Iron, Painted..... \$ doz., 14 1/2, 15 1/2  
Barn Door, Light, in..... \$ doz., 2.00, 2.50, 3.10, 10 1/2  
B. D. for N. E. Hangers..... Small, Med. Large.  
Per 100 feet..... \$15 2/10 2/70 3/25 Net  
Tarry's Steel Rail, 7 1/2 ft. foot..... \$ doz., 60@65 1/2  
Victor Track Rail, 7 1/2 ft. foot..... \$ doz., 60@65 1/2  
Carrier, double braced, Steel Rail, 7 1/2 ft. foot..... \$ doz., 60@65 1/2  
Lundy Parlor Door, Planed Edge, 7 1/2 ft. foot..... \$ doz., 25@102 1/2  
Moore's Steel Rail..... \$ doz., 25@102 1/2  
Moody Steel Rail..... \$ doz., 25@102 1/2

**Rakes-**

Cast Steel, Association & Co., 70@70@52 1/2  
Cast Steel, outside g'ds..... 70@70@52 1/2  
Malleable..... 70@70@52 1/2  
Gibbs' Lawn Rake..... \$ doz., \$4.90  
Gibbs' Canton Lawn Rake..... \$ doz., \$3.75  
Gibbs' Acme Lawn Rake..... \$ doz., \$4.75  
Gibbs' Favorite Lawn Rake..... \$ doz., \$3.90  
Gibbs' Crown Lawn Rake, No. 1..... \$ doz., \$4.90; No. 2, \$5.40  
Onelda Lawn Rake..... \$ doz., \$6.00  
Fort Madison Prize Bow Brace and Peerless..... 60 1/2  
Fort Madison Steel Tooth Lawn Rake..... \$ doz., 25@102 1/2

**Razors-**

J. R. Torrey Razor Co..... 20 1/2  
Wootenholm and Butcher, \$10 to 2..... 10 1/2  
Jordan's AAAI, new list..... Net  
Jordan's Old Faithful, new list..... Net  
Salvatore..... \$ doz., \$15.00  
Electric Cutlery Co., Net  
Campbell Cutlery Co..... 50 1/2

**Razor Straps-**

See Straps, Razor.

**Registers-**

Moore's Japanned..... 75 1/2  
Moore's Electroplated..... 75 1/2  
Moore's Bronze Finishes..... 70 1/2  
Moore's Solid Bronze..... 65 1/2  
Moore's Stove Pipe..... 35 1/2

**Rings and Ringers-****Bull Rings-**

Union Nut Co..... 55 1/2  
Sargent's..... 75@102 1/2  
Hotchkiss' low list..... 30 1/2  
Humason, Beckley & Co.'s..... 70@102 1/2  
Peck, Stow & W. Co.'s, 50@102 1/2  
Ulrich Edw. Co., White Metal, low list, 50@50@102 1/2

**Hog-**

Top of the Hill Ringers..... \$ doz \$2.00  
Top of the Hill Ringers..... \$ doz \$1.25  
Hill's Improved Ringers..... \$ doz \$1.25  
Hill's Old Style Ringers..... \$ doz \$1.12 1/2  
Hill's Tongs..... \$ doz \$3.00  
Hill's Rings..... \$ doz bxs \$1.00  
Perfect Rings..... \$ doz bxs \$1.50  
Perfect Rings..... \$ doz bxs \$1.50  
Blair's Hog Ringers..... \$ doz \$2.00  
Blair's Hog Ringers..... \$ doz \$2.00  
Blair's Hog Ringers..... \$ doz \$2.00  
Champion Ringers..... \$ doz \$2.00  
Champion Ringers, Double..... \$ doz \$2.25  
Brown's Ringers..... \$ doz \$2.25  
Brown's Ringers..... \$ doz \$2.25  
Electric Hog Ringers..... \$ doz \$1.50  
Electric Hog Ringers..... \$ doz \$1.50  
Major Ringers..... \$ doz \$1.25  
Major Ringers..... \$ doz \$2.00

**Rivets and Burrs-**

Norway Iron list Nov. 17, '87..... 60@102 1/2  
Second quality..... 75 1/2  
Copper..... 90@90@102 1/2  
Coppered Iron, Best Brand..... 50@55 1/2

**Rivet Sets-See Sets.****Roasting and Baking Pans-See Pans, Roasting and Baking.****Rods-**

Star, Brass..... 25@30 1/2  
Star, Black Walnut..... \$ doz 40 1/2

**Rollers-**

Barn Door, Sargent's list..... 60@102 1/2  
Moore's Anti-Friction..... 55 1/2  
Union Barn Door Roller..... 70 1/2  
Moore's Barn Door Stay..... 50 1/2  
Chomson Mfg. Co.'s Lawn Rollers..... 30 1/2

**Rope-**

The following prices are f.o.b. New York or factory, and are shaded 1/4@3/4% on large lots; terms, 1 1/4% for cash.  
Manila, 7-16 in. diam. and larger..... \$ 9 1/2  
Manila, 1/4 and 5-16 in. \$ 10 1/2  
Manila, Tarred Rope..... \$ 8 1/2  
Manila, Hay Rope..... \$ 7 1/2  
Sisal, 7-16 inch and larger..... \$ 8 1/2  
Sisal, 3/4 in. \$ 8 1/2  
Sisal, 1/4 and 5-16 in. \$ 7 1/2  
Sisal, Hay Rope..... \$ 7 1/2  
Sisal, Tarred Rope..... \$ 7 1/2  
Sisal, Medium Lath Yarn..... \$ 7 1/2  
New Zealand, 7-16 in. \$ 7 1/2  
New Zealand, 1/4 and 5-16 inch, \$ 7 1/2  
New Zealand, Hay Rope..... \$ 6 1/2  
New Zealand, Tarred Rope..... \$ 6 1/2  
Cotton Rope..... \$ 18 1/2@18 1/2  
Jute Rope..... \$ 6 1/2@7 1/2

**Wire-**

List February, 1892. All kinds..... 45 1/2

**Rules-**

Boxwood..... 90@102 1/2@80@102 1/2  
Pony..... 50@102 1/2  
Stettin's Steel Rules and Straight Edges..... 25@102 1/2

**Sad Irons-See Irons, Sad.**

Sand and Emery Paper and Cloth-See Paper and Cloth.

**Sash Cord-See Cord, Sash.****Sash Locks-See Locks, Sash.****Sash Weights-**

See Weights, Sash.

**Sausage Stuffers or Fillers-See Stuffers or Fillers.****Saws-**

Disston's Circular..... 45@45@55 1/2  
Disston's Cross Cut, list Jan. 1, '93, 40@102 1/2  
Disston's Hand..... 25 1/2  
Woodrough & McFarlin..... 25 1/2  
Hand, Panel and Rip..... 25@102 1/2  
Cross Cuts, list Jan. 1, 1893..... 45@102 1/2  
Wheeler, Madden & Clemson Mfg. Co..... 40 1/2  
Hand, Panel and Rip..... 30@102 1/2  
Cross Cuts, list Jan. 1, 1893..... 45@102 1/2  
Atkins' Circular..... 60@102 1/2  
Atkins' Cross Cuts, new list..... 40 1/2  
Atkins' Mulay, Mill and Drag..... 50@102 1/2  
Atkins' One-Man Saw..... 40 1/2  
Atkins' Wood Saws..... 40 1/2  
Peace Circular and Panel..... 45@45@55 1/2  
Peace Cross Cuts, list Jan. 1, '93..... 45@102 1/2  
Richardson's Circular and Mill..... 45@45@55 1/2  
Richardson's X Cuts, list Jan. 1, '93, 45@102 1/2  
Richardson's Hand, &c..... 25@25@55 1/2  
C. E. Jennings & Co.'s brand..... 25 1/2

**Hack Saws-**

Griffin's, complete..... 40@102 1/2  
Griffin's Hack Saw Blades..... 40@102 1/2  
Star Hack Saws and Blades..... 25 1/2  
Eureka and Crescent..... 25 1/2

**Scroll-**

Lester, complete, \$10.00..... 25 1/2  
Rogers, complete, \$4.00..... 25 1/2  
Barnes' Builders' and Cab Makers' \$15.25  
Barnes' Scroll Saw Blades..... 35 1/2

**Saw Frames-**

See Frames, Saw.

**Saw Sets-See Sets, Saw.****Saw Tools-See Tools, Saw.****Scales-**

Hatch, Counter, No. 171, good quality, \$ doz \$18.00@19.00  
Hatch Tea, No. 161..... \$ doz \$6.50@7.00  
Union Platform, Plain..... \$2.10@2.20  
Union Platform, Striped..... \$2.40@2.50  
Chattillon's Grocers' Trip Scales..... 50 1/2  
Chattillon's Eureka..... 25 1/2  
Chattillon's Favorite..... 40 1/2  
Family Turnbills..... 30@30@102 1/2  
Riehle Bros' Platform..... 40 1/2

**Scale Beams-**

See Beams, Scale.

**Scissors, Fluting-**

45 1/2

**Scrapers-**

Adjustable Box Scraper (S. R. & L. Co.) \$4.00..... 30@102 1/2  
Box, 1 Handle..... \$ doz \$2.25@2.50  
Box, 2 Handle..... \$ doz \$3.00@3.25  
Eiffage Box and Shp..... 50@102 1/2  
Ship, Common..... \$ doz \$3.50 net  
Ship, R. I. Tool Co..... 10 1/2

**Screen Window and Door**

Frames-See Frames

**Screw Drivers-**

See Drivers, Screw

**Screws-****Bench and Hand-**

Bench, Iron..... 55@102 1/2@55@102 1/2  
Bench, Wood, Beech..... \$ doz \$2.25  
Bench, Wood, Hickory..... 20@102 1/2  
Hand, Wood..... 25@102 1/2@25@102 1/2  
Hand, Grand Rapids, list..... 35 1/2

**Coach, Lag and Hand-Rail-**

Lag, Blunt Point, list Jan. 1, 1890..... 80@80@102 1/2  
Coach and Lag, Gimlet Point, list Jan. 1, 1890..... 80@80@102 1/2  
Hand Rail, Sargent's..... 70@102 1/2  
Hand Rail, H. & B. Mfg. Co..... 70@102 1/2  
Hand Rail, Am. Screw Co..... 75 1/2

**Jack Screws-**

Jack Screws, Millers Falls list 50@50@102 1/2  
Jack Screws, P. S. & W..... 35 1/2  
Jack Screws, Sargent..... 70 1/2  
Jack Screws, Stearns..... 40@40@102 1/2

**Cork-**

Humason & Beckley Mfg. Co. 40@102 1/2@50 1/2  
Williamson's..... 55 1/2@55 1/2@55 1/2  
Detroit Cork Screw Co..... 35 1/2

**Machine-**

Flat Head Iron..... 65 1/2  
Round Head Iron..... 60 1/2

**Wood-**

List January 1, 1891.  
Flat Head Iron..... 70 1/2  
Round Head Iron..... 65 1/2  
Flat Head Brass..... 70 1/2  
Round Head Brass..... 65 1/2  
Flat Head Bronze..... 70 1/2  
Round Head, Bronze..... 65 1/2  
Rogers' Drive Screws..... 82 1/2

**Scroll Saws-See Saws, Scroll.****Scythes-**

Grain..... 40@45@40@102 1/2  
Grass..... 40@102 1/2@50 1/2

**Scythe Snaths-**

See Snaths, Scythe.

**Sets-****Awl and Tool-**

Aiken's Sets, Awls and Tools..... 60@60@55 1/2  
Frax's Adj. Tool Eds., Nos. 1, \$12; 2, \$12; 3, \$12; 4, \$2..... 45 1/2  
Millers Falls Adj. Tool Eds..... 25 1/2  
Nos. 1, \$12; 2, \$12..... 25 1/2  
Henry's Combination Haft..... \$ doz \$6.50  
Stanley's Excelsior..... \$ doz \$7.50; No. 2, \$4.00; No. 3, \$5.50..... 30@102 1/2  
Common Brad Sets..... No. 42, \$10.50; No. 43, \$12.50..... 70@102 1/2

**Nail-**

Square..... \$ gr. \$4.00@4.25  
Round..... \$ gr. \$3.25  
Buck Bros..... 27 1/2  
Cannon's Diamond Point..... \$ gr. \$12, 20 1/2

**Rivet-**

Regular list..... 70 1/2

**Saw-**

Stillman's Genuine..... \$ doz \$5.00@7.75, 40 1/2  
Stillman's Pattern, Hand, \$ doz \$3.25  
Cross Cut, \$6.50..... 55@55@102 1/2  
Common Lever..... \$ doz \$2.00, 45@50 1/2  
Morrill's No. 1, \$15.00..... 40@20 1/2  
No. 1, \$15.00..... 40@20 1/2  
No. 2, \$15.00..... 40@20 1/2  
No. 3, \$15.00..... 40@20 1/2  
No. 4, \$15.00..... 40@20 1/2  
No. 5, \$15.00..... 40@20 1/2  
No. 6, \$15.00..... 40@20 1/2  
No. 7, \$15.00..... 40@20 1/2  
No. 8, \$15.00..... 40@20 1/2  
No. 9, \$15.00..... 40@20 1/2  
No. 10, \$15.00..... 40@20 1/2  
No. 11, \$15.00..... 40@20 1/2  
No. 12, \$15.00..... 40@20 1/2  
No. 13, \$15.00..... 40@20 1/2  
No. 14, \$15.00..... 40@20 1/2  
No. 15, \$15.00..... 40@20 1/2  
No. 16, \$15.00..... 40@20 1/2  
No. 17, \$15.00..... 40@20 1/2  
No. 18, \$15.00..... 40@20 1/2  
No. 19, \$15.00..... 40@20 1/2  
No. 20, \$15.00..... 40@20 1/2  
No. 21, \$15.00..... 40@20 1/2  
No. 22, \$15.00..... 40@20 1/2  
No. 23, \$15.00..... 40@20 1/2  
No. 24, \$15.00..... 40@20 1/2  
No. 25, \$15.00..... 40@20 1/2  
No. 26, \$15.00..... 40@20 1/2  
No. 27, \$15.00..... 40@20 1/2  
No. 28, \$15.00..... 40@20 1/2  
No. 29, \$15.00..... 40@20 1/2  
No. 30, \$15.00..... 40@20 1/2  
No. 31, \$15.00..... 40@20 1/2  
No. 32, \$15.00..... 40@20 1/2  
No. 33, \$15.00..... 40@20 1/2  
No. 34, \$15.00..... 40@20 1/2  
No. 35, \$15.00..... 40@20 1/2  
No. 36, \$15.00..... 40@20 1/2  
No. 37, \$15.00..... 40@20 1/2  
No. 38, \$15.00..... 40@20 1/2  
No. 39, \$15.00..... 40@20 1/2  
No. 40, \$15.00..... 40@20 1/2  
No. 41, \$15.00..... 40@20 1/2  
No. 42, \$15.00..... 40@20 1/2  
No. 43, \$15.00..... 40@20 1/2  
No. 44, \$15.00..... 40@20 1/2  
No. 45, \$15.00..... 40@20 1/2  
No. 46, \$15.00..... 40@20 1/2  
No. 47, \$15.00..... 40@20 1/2  
No. 48, \$15.00..... 40@20 1/2  
No. 49, \$15.00..... 40@20 1/2  
No. 50, \$15.00..... 40@20 1/2  
No. 51, \$15.00..... 40@20 1/2  
No. 52, \$15.00..... 40@20 1/2  
No. 53, \$15.00..... 40@20 1/2  
No. 54, \$15.00..... 40@20 1/2  
No. 55, \$15.00..... 40@20 1/2  
No. 56, \$15.00..... 40@20 1/2  
No. 57, \$15.00..... 40@20 1/2  
No. 58, \$15.00..... 40@20 1/2  
No. 59, \$15.00..... 40@20 1/2  
No. 60, \$15.00..... 40@20 1/2  
No. 61, \$15.00..... 40@20 1/2  
No. 62, \$15.00..... 40@20 1/2  
No. 63, \$15.00..... 40@20 1/2  
No. 64, \$15.00..... 40@20 1/2  
No. 65, \$15.00..... 40@20 1/2  
No. 66, \$15.00..... 40@20 1/2  
No. 67, \$15.00..... 40@20 1/2  
No. 68, \$15.00..... 40@20 1/2  
No. 69, \$15.00..... 40@20 1/2  
No. 70, \$15.00..... 40@20 1/2  
No. 71, \$15.00..... 40@20 1/2  
No. 72, \$15.00..... 40@20 1/2  
No. 73, \$15.00..... 40@20 1/2  
No. 74, \$15.00..... 40@20 1/2  
No. 75, \$15.00..... 40@20 1/2  
No. 76, \$15.00..... 40@20 1/2  
No. 77, \$15.00..... 40@20 1/2  
No. 78, \$15.00..... 40@20 1/2  
No. 79, \$15.00..... 40@20 1/2  
No. 80, \$15.00..... 40@20 1/2  
No. 81, \$15.00..... 40@20 1/2  
No. 82, \$15.00..... 40@20 1/2  
No. 83, \$15.00..... 40@20 1/2  
No. 84, \$15.00..... 40@20 1/2  
No. 85, \$15.00..... 40@20 1/2  
No. 86, \$15.00..... 40@20 1/2  
No. 87, \$15.00..... 40@20 1/2  
No. 88, \$15.00..... 40@20 1/2  
No. 89, \$15.00..... 40@20 1/2  
No. 90, \$15.00..... 40@20 1/2  
No. 91, \$15.00..... 40@20 1/2  
No. 92, \$15.00..... 40@20 1/2  
No. 93, \$15.00..... 40@20 1/2  
No. 94, \$15.00..... 40@20 1/2  
No. 95, \$15.00..... 40@20 1/2  
No. 96, \$15.00..... 40@20 1/2  
No. 97, \$15.00..... 40@20 1/2  
No. 98, \$15.00..... 40@20 1/2  
No. 99, \$15.00..... 40@20 1/2  
No. 100, \$15.00..... 40@20 1/2

**Sharpeners, Knife-**

Larkins'..... \$ doz \$6.00, 40 1/2  
Rosewood or Cocobola..... \$ doz \$9.00, 40 1/2

**Shaves, Spoke-**

Iron..... 45 1/2  
Wood..... 30 1/2  
Bailey's (Stanley R. & L. Co.)..... 40@102 1/2  
Stearns..... 30@102 1/2  
Cincinnati..... 25@102 1/2  
Goodell's..... \$ doz \$9.00..... 25 1/2

**Shears-**

American (Cast) Iron..... 75@102 1/2@75@102 1/2  
Barnard's Lamp Trimmers..... \$ doz \$3.75  
Seymour's, list Dec. 1881..... 80@102 1/2@80@102 1/2  
Heinrich's, list Dec. 1881..... 80@102 1/2@80@102 1/2  
Heinrich's Tailor's Shears..... 55 1/2  
Cast Steel Trimmers:  
First quality..... 80@80@102 1/2  
Second quality..... 80@102 1/2@80@102 1/2  
Acme Cast Shears..... 10@102 1/2  
Diamond Cast Shears..... 10 1/2  
Clippers..... 10 1/2  
Victor Cast Shears..... 75@102 1/2@75@102 1/2  
Howe Bros. & Hulbert, Solid Forged Steel..... 40 1/2  
Hatch Cutlery Co., Solid Steel Forged..... 60 1/2  
Davenport Cutlery Co..... 60@60@102 1/2  
Clausen brand, Japanned..... 60 1/2  
Clausen brand, Nickel, same list..... 60 1/2  
Galvanic 3/4 to 9 in. \$ doz \$1.00, 70 1/2  
Electric Cutlery Co..... Net  
Campbell Cutlery Co., Jap'd..... 75 1/2  
Nickel Plated..... 65 1/2

**Tinnars' Snips-**

Wrt. Handles, Steel Blades..... 20@20@102 1/2  
Niagara Snips and Shears..... 20@102 1/2  
Cast Handles, Laid with Steel..... 40 1/2

**Pruning Shears and Hook**

Disston's Combined Pruning Hook and Saw..... \$ doz \$18.00, 20@102 1/2  
Disston's Pruning Hook..... \$ doz \$12.00, 20@102 1/2  
E. S. Lee & Co.'s Pruning Tools, 50@102 1/2@70 1/2  
Pruning Shears, Henry's Pat., \$ doz \$3.75@4.25  
Henry's Pruning Shears..... \$ doz \$4.25

**Wheeler, M. & C. Co., Combination**

Dunlap's Saw and Chisel..... \$ doz \$3.50, 30 1/2  
J. Mallinson & Co., No. 1, \$5.25; No. 2, \$7.25  
P. S. & W. Co..... 60 1/2  
Levin Pruner No. 1, \$15.00 \$ doz 40@50 1/2  
Levin Pruner No. 2, \$21.00 \$ doz 40@50 1/2

**Tinnars', &c.-**

Shears and Snips (P. S. & W.)..... 20@20 1/2  
Snips, J. Mallinson & Co..... 25 1/2

**Sheaves-****Sliding Door-**

**Snaps, Harness, &c.**

Anchor (T. & S. Mfg. Co.)	50¢
Fitch's (Bristol)	50¢
Hotchkiss	10¢
Andrews	10¢
Sargent's Patent Guard	70¢
German, new list	40¢
Cover, 50x10x5x2	50¢
Cover, New Patent	50¢
Cover, New R. E.	50¢
Covered Spring	60¢
Cover's Saddlery Works' Triumph	39¢
John Frost's Steel	75¢
Kelley & Woolworth's Steel Harness	50¢

**Snaths**

Scythe	50¢
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**Soldering Irons**

See Irons, Soldering.

**Splittoons, Cuspidors, &c.**

Standard Fiberware	
Cuspidors, 8 1/2-inch, No. 5, \$3; No. 6, \$4	
Splittoons, Daisy, 8-inch, No. 1, 4; 10 and 11 inch, \$6	

**Spoke Shaves**

See Shaves, Spoke.

**Spoke Trimmers**

See Trimmers, Spoke.

**Spoons and Forks**

Tinned Iron

Basting, Cen. Stamp. Co.'s list	70¢
Solid Table and Tea, Cen. Stamp. Co.'s list	70¢
Buffalo, S. S. & Co.	39¢

**Silver Plated**

4 months or 5¢ cash 30 days:	
Meriden Brit. Co., Rogers	40¢
C. Rogers & Bros.	40¢
Rogers & Bros.	40¢
Reed & Barton	40¢
Wm. Rogers Mfg. Co.	40¢
Simpson, Hall, Miller & Co.	40¢
Holmes & Edwards Silver Co.	40¢
L. Boardman & Son	50¢

**Miscellaneous**

Holmes & Edwards Silver Co.	
No. 67 Mexican Silver	50¢
No. 80 Silver Metal	50¢
No. 24 German Silver	50¢
No. 60 Nickel Silver	50¢
No. 49 Nickel Silver	50¢
Wm. Rogers Mfg. Co.	50¢
Rogers' Silver Metal	50¢
135 Rogers' German Silver	60¢
22 Rogers' Nickel Silver	50¢
German Silver	50¢
German Silver, Hall & Elton	50¢
Nickel Silver	50¢
Britannia	60¢
Boardman's Nickel Silver, list July 1, 1891	60¢
Boardman's Britannia Spoons, case lots	60¢

**Springs**

Torrey's Rod, 39 in.	50¢
Warner's No. 1, 1 doz \$1.20; No. 2, \$1.40	
Star (Coil), list April 19, 1886	20¢
Victor (Coil)	20¢
Champion (Coil)	60¢
Dowell's, No. 1, 1 doz \$1.80; No. 2, \$1.60	
Bubber, complete, 1 doz \$4.50	50¢
Hercules	50¢
Phoenix	39¢

**Carriage, Wagon, &c.**

Elliptic, Concord, Platform and Half Scroll	
60x10x80x10x10 or net prices	
Cliff's Bolster Springs	25¢

**Squares**

Steel and Iron	80¢
Nickel Plated	80¢
Try Square and T Bevels	60¢
Diston's Try Square and T Bevels	50¢
Winterbottom's Try and Miter	30¢
Starrett's Micrometer Caliper Squares	25¢
Avery's Flush Bevel Squares	40¢
Avery's Bevel Protractor	50¢

**Squeezers**

Fodder	
Blair's	50¢
Blair's "Climax"	50¢

**Lemon**

Wood, No. 2	26¢
Wood, Common	30¢
Dunlap's Improved	30¢
Samuels, No. 1, \$5.00; No. 2, \$4.12	
Jennings' Star	26¢
The Boss	26¢
Dean's, No. 1, 1 doz \$8.50; 2, \$8.35; 3, \$8.10; Queen, \$2.50	
Little Giant	50¢
King	40¢
Hotchkiss Straight Flash	12¢
Silver & Co., Glass	90¢

**Standard Fiber Ware**

See Ware, Standard Fiber.

**Staples**

Barbed Blind, 1/2 in. and larger	7¢
Barbed Blind, 3/4 in.	8¢
Fence Staples, Galvanized	5¢
Fence Staples, Plain	5¢
Grand Crossing Tack Co.'s list	75¢

**Steelyards****Stocks and Dies**

Blacksmith's	
Waterford Goods	35¢
Butterfield's Goods	25¢
Lightning New Screw Plates	25¢
Becker's New Screw Plates	25¢
Reverend's Ratchet	80¢
Gardner	25¢
Green River	25¢

**Stops, Bench**

Morrill's, No. 1, \$10.00; No. 2, \$11.00	
Hotchkiss's	50¢
Hotchkiss's, No. 1, 0 No. 2, 50¢	

**McGill's, No. 1 and 2, \$3; No. 3, \$3.60**

Terrell's No. 1 and 2, \$3; No. 3, \$3.60	
Millers Falls	25¢
Stearns	20¢

**Stone****Scythe Stones**

Pike Mfg. Co., list April, 1892

Cleveland Stone Co., list Nov. 1892

**Oil Stones, &c.**

Pike Mfg. Co.

Hindustan No. 1, \$1.00

Sand Stone

Turkey Oil Stone, 4 to 8 in.

Lily White Washita

Rosy Red Washita

Washita Stone, Extra

Washita Stone, No. 1

Lily White Slips

Rosy Red Slips

Washita Slips, Extra

Washita Slips, No. 1

Arkansas Stone, No. 1, 8 in.

Arkansas Stone, No. 1 1/2 to 3 in.

Lake Superior

Lake Superior Slips

**Stove Polish**

See Polish, Stove.

**Stretchers Carpet**

Cast Steel, Polished

Cast Iron, Steel Points

Scheuch's

Bullard's

**Strops, Razor**

Genuine Emerson

Imitation

Torrey's

Badger's Belt and Com.

Lamont Combination

Jordan's Pat. Padded, list Nov. 1, '89

Electric Cutlery Co.

Campbell Cutlery Co.

**Stuffer, Sausage**

Miles' Challenge, 1 doz \$2.00

Perry, 1 doz, No. 1, \$1.50; No. 0, \$2.10

Draw Cut No. 4, each \$30.00

Enterprise Mfg. Co., list Jan 17, '93

Silver's

**Sweepers, Carpet and Lawn Carpet**

Bissell No. 5

Bissell No. 8

Bissell, Grand

Standard

Domestic

Domestic, No. 2

Grand Rapids

Crown Jewel, No. 1

Magie

Improved Parlor Queen

Nickel

Jannan

Excelior

Garland

Parlor Queen

Housewife's Delight

Ladies' Friend

Ladies' Friend No. 2

Advance

Our Leader

Triumph

Goshen

Supreme

Easy

Gilt Edge

Acme

Imperial

Grand Republic

Banner

The Star

Reliable

The Rapid

Our Own

Model

Goshen Sweeper Company

Rapid, Mich., make the following rebates:

5 dozen in 6 months

10 dozen in 6 months

25 dozen in 6 months

Except on L.F., when 10 dozen price is \$13.50, and 25 dozen \$13.00.

**Lawn**

Thompson Mfg. Co.

**Swings**

Davies Lawn

**Tacks, Brads &c.**

List October 19, 1889. Old established

straight weights. Short Weight goods

are sold at lower prices.

**Carpet Tacks**

American, Blued

American, Tin'd and Cop'd

Steel, Bright and Blued

Steel, Tinned and Coppered

Sweden Iron, Blued

Sweden Iron, Tinned

American Iron Tacks, Domestic

Sweden Iron Tacks

S. S., Blued

S. S., Tinned

Lanc., Blued

Lanc., Tinned

Gimp and Lace Tacks

S. S., Blued

S. S., Tinned

Lanc., Blued

Lanc., Tinned

Basket and Trimmers' Tacks

Lanc.

S. S.

Hungarian Nails

Common and Patent Brads

Leathered Tacks

Brush Tacks, S. S.

Looking Glass Tacks, S. S.

Picture-Frame Points, S. S.

Finishing Nails

Trunk and Clout Nails

Black

Tinned or Coppered

Basket Nails

Chair Nails

Cigar Box Nails

The Capped Nail

**Miscellaneous**

Double Point

Wire Carpet Nails

Claw Handle Carpet

Rabbit Nail

**Bill Nye Brad Box**

Parisian Gilt Nails, cartoon	50¢
Home Tacks, No. 50, 1 case (12 car- tons), \$36.00; No. 100, 1 case (12 cartons), \$72.00	
Home Nails, No. 200, 1 case (12 car- tons), \$30.00; No. 400, 1 case (12 cartons), \$60.00	
Upholsterers' Nails	50¢

**Wire Brads and Nails**

Steel-Wire Brads, R. & E. Mfg. Co.'s list

See also Nails, Wire.

**Tanks, Oil**

Emerald S. S. & Co.: 30-gal. \$8.75; 60-gal., \$11 each

**Tapes, Measuring**

American

Spring

Chesterman's, Regular list

**Thermometers**

Tin Case

**Thimble Skeins**

See Skeins.

**Ties, Bale**

Standard Wire, list

**Tinners' Shears, &c**

See Shears, Tinners' &c.

**Tinware**

Stamped, Janned and Piced, list Jan 20, 1887

**Tire Benders, Upsetters, &c.**

See Benders and Upsetters, Tire.

**Tobacco Cutters**

See Cutters, Tobacco.

**Tools**

**Coopers'**

Bradley's

L. & J. White

Albertson Mfg. Co.

Beatty's

Sandusky Tool Co.

Shaves Cincinnati Tool Co.

**Lumber**

Ring Peavies, "Blue Line"

Ring Peavies, Common

Steel Socket Peavies

Mall Iron Socket Peavies

Cant Hooks, "Blue Line"

Cant Hooks, Common Finish

Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish

Cant Hooks, Mall. Socket Clasp, Common Finish

Cant Hooks, Clip Clasp, "Blue Line"

Cant Hooks, Clip Clasp, Common Finish

Hand Spikes

Pike Poles, Pike & Hook

Pike Poles, 14 ft., \$12.50; 16 ft., \$14.50; 18 ft., \$17.50; 20 ft., \$21.50

Pike Poles, Pike only

Pike Poles, 14 ft., \$11.00; 16 ft., \$13.00; 18 ft., \$16.00; 20 ft., \$20.00

Pike Poles, not ironed

Setting, 16 ft., \$7.00; 18 ft., \$9.00; 18 ft., \$12.00; 20 ft., \$16.00

Swamp Hooks

**Saw**

Atkins, new list

**Transom Lifters**

See Lifters, Transom.

**Traps**

**Game**

Newhouse

Oneda Pattern

Game, Blake's Patent

**Mouse and Rat**

Mouse Wood, Choker

Mouse, Round Wire

Mouse, Cage, Wire

Mouse, Catch-em-alive

Mouse, Bonanza

Rat, Decoy

Ideal

Cyclops

Hotchkiss Millie Mouse

Hotchkiss Imp. Rat Killer

Hotchkiss New Rat Killer

Schuyler's Rat Killer

Dandy

Waddell's Go Bang

**Fly**

Harper, Champion or Paragon

Balloon, Globe or Acme

Butter and Cheese

**Trimmers, Spoke**

Bonney's

Ives, No. 1, \$15.00; No. 2, \$12.00



## Whips

American Whip Co.: Length.	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2	8 ft.
X. L. Whalebones Driving.	\$18.00	20.00	22.00	24.00	27.00	30.00	33.00	36.00
Bureks, Two-thirds Whalebones.	15.00	16.50	18.00	20.00				
Bull Bone, Half-length Whalebone.								
Done.	8.00	8.50	9.00	10.00	11.00	12.00	13.00	15.00
True Grip, Raw Hide Center.	6.00	6.00	6.50	7.00	7.50	8.00		
New Name, Stocked Java, Black and Wine Colors.								
American Standard.								
Gentle Light Driving No. 108.								
Gentle Light Driving No. 109.								
Hand-made Stocked Java No. 108.								
A large variety of cheaper grades.								
Team Whips.								
Toy Whips.								
Hardware Assortment, 10 American, 75 Whips for \$50.00.								

## Wire and Wire Goods—

## Iron—

Market.	Br. & Ann. Nos. 0 to 18.	Extra 5@10% often given and net prices often made on large lots.
Cop'd, Nos. 0 to 18.	70@75@10@5%	
Galv., Nos. 0 to 18.	70@75@10@5%	
Tin'd, Tin'd list, Nos. 0 to 18.	70@75@10@5%	

## Stone.

Br. & Ann'd, Nos. 18 to 19.	Br. & Ann'd, Nos. 19 to 26.	Br. & Ann'd, Nos. 27 to 36.	Extra 10% often given.
Tinned Broom Wire, 18 to 21.	75@10@5%		
Galvanized Fence.	75@10@5%		
Brass, list Jan. 18, 1894.	40@5%		
Copper, list Jan. 18, 1894.	40@5%		
Annealed Wire on Spools.	60@5%		
Malin's Annealed & Tin'd on Spools.	60@5%		
Malin's Brass and Cop. on Spools.	60@5%		

Ossawann Mills, An'd and Tinned on Spools. 60@10%  
 Ossawann Mills, Brass and Copper on Spools. 50@10%  
 Tate's Spooled, Tin'd & Annealed. 60@5%  
 Tate's Spooled Cop. and Brass. 60@5%  
 Girard Steel Wire. 50@10%  
 Stub's Steel Wire. 50@10%  
 Steel Music Wire, 12 to 30, imported. 60@70@5%  
 Wire Clothes Line, see Lines.  
 Wire Picture Cord, see Cord.

## Bright Wire Goods—

Standard list. 85@85@10%  
 Wire Cloth and Netting—  
 Painted Screen Cloth 100 ft. \$1.75@2.00  
 Galvanized Wire Netting. 75@75@10%

## Wire Barb—

See Trade Report.  
 Wire Rope—See Rope, Wire.

## Wrenches—

American Adjustable.	40%
Baxter's Adjustable "8".	40@10@50%
Baxter's Diagonal.	60%
Coe's Genuine.	50@50@10%
Coe's Mechanics.	50@10@3%
Girard Steel.	55@10@7%
Lamson & Sessions' Engineers.	60@10%
Lamson & Sessions' Standard.	70@10%
P. S. & W. Agricultural.	
Girard Agricultural.	75@10@80%
Lamson & Sessions' Agric.	
W. & B. Diamond.	

## Bemis &amp; Call's:

Pat. Combination Bright.	40@5%
Pat. Combination Black.	40@10%
Merrick's Pattern.	45%
Briggs's Pattern.	30@10%
Cylinder or Gas Pipe.	45@5%
No. 8 Pipe.	50%
Aiken's Pocket (Bright).	\$5.00, 50@10%
The Favorite Pocket.	* doz., \$4.00, 40%
Webster's Pat. Combination.	25%
Boardman's.	25%
Always Ready.	55%
Allegator.	25%
Cinchue's Engine.	50@10%
Eagle.	50@10%
Acme, Bright.	50@5%
Acme, Nickle.	40@5%
Hercules.	70@70@5%
Walker's.	55@5%
Diamond Steel.	25@10%
Cincinnati Brace Wrenches.	55@10%
Taft's Vise Wrench.	55@10@5%

## Wringers, Clothes—

Am. Wringer Co.'s list July 1, 1892.	3% cash
Colby Wringer Co., list Sept. 1, 1892.	25% cash
Lovell Mfg. Co., list July 1, 1892.	25% cash
Peerless Mfg. Co., list Feb. 1, 1892.	25% cash
National Wringer & Mfg. Co., list June 1, 1892.	2% cash

## Wrought Goods—

Staples, Hooks, &c., list March 17, 1893.	85@10@85@15
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## Paints, Oils and Colors.—Wholesale Prices.

## Animal and Vegetable Oils—

Linseed, City, raw, per gal.	50
Linseed, City, boiled.	50
Linseed, Western, raw.	48
Lard, City, Extra Winter.	75
Lard, City Prime.	74
Lard, City, Extra No. 1.	65
Lard, City, No. 1.	55
Lard, Western, prime.	73
Cotton-seed, Crude, prime.	37
Cotton-seed, Crude, off grades.	34
Cotton-seed, Summer Yellow, prime.	42
Cotton-seed, Summer Yellow, off grades.	40
Sperm, Crude.	35
Sperm, Natural Spring.	35
Sperm, Bleached Spring.	35
Sperm, Natural Winter.	1.00
Sperm, Bleached Winter.	1.05
Whale, Crude.	55
Whale, Natural Winter.	55
Whale, Bleached Winter.	55
Whale, Extra Bleached.	59
Sea Elephant, Bleached Winter.	40
Menhaden, Crude, Sound.	40
Menhaden, Crude, Southern.	42
Menhaden, Light Pressed.	42
Menhaden, Bleached Winter.	45
Menhaden, Extra Bleached.	48
Tallow, City, prime.	60
Tallow, Western, prime.	60
Cocanut, Ceylon.	6
Cocanut, Cochiti.	6
Cod, Domestic.	38
Cod, Foreign.	44
Red Elaine.	44
Red Saponified.	54
Bank.	40
Straits.	41
Olive, Italian, bbls.	58
Neatsfoot, prime.	75
Palm, prime, Lagos.	74

## Mineral Oils—

Black, 29 gravity, 25 @ 30 cold test.	7 @ 74
Black, 29 gravity, 15 cold test.	74 @ 8
Black, 29 gravity, summer.	6 @ 64
Cylinder, light, filtered.	14 @ 16

Cylinder, dark, filtered.	10 @ 13
Paraffine, 23 1/2 @ 24 gravity.	11 @ 12
Paraffine, 25 gravity.	10 @ 11
Paraffine, 28 gravity.	7 1/2 @ 8
Paraffine, red.	7 1/2 @ 10 1/2

## Paints and Colors—

Barytes, Foreign, 10 ton.	\$22.00
Barytes, Amer. floated.	\$22.00
Barytes, Amer. No. 1.	\$18.00
Barytes, Amer. No. 2.	\$13.00
Barytes, Amer. No. 3.	\$11.00
Blue, Celestial.	6 @ 8
Blue, Chinese.	40 @ 50
Blue, Prussian.	25 @ 40
Blue, Ultramarine.	8 @ 25
Brown, Spanish.	3 1/2 @ 3 1/2
Brown, Vandyke, Amer.	3 @ 3 1/2
Brown, Vandyke, English.	3 @ 3 1/2
Carmine, No. 40, in bulk.	2.75 @
Carmine, No. 40, in boxes or barrels.	2.85 @
Carmine, No. 40, in ounce bottles.	3.75 @
Chalk, in bulk.	2.40 @ 2.50
Chalk, in bbls.	33 @ 40
China Clay, English.	10 @ 18.00
Cobalt Oxide, prep'd.	9.00 @ 11.00
Cobalt Oxide, black.	1.90 @
Cobalt Oxide, black, lots 100 lb.	1.90 @
Cobalt Oxide, black, less 100 lb.	1.06 @
Green, Paris, in bulk.	10 @ 10 1/2
Green, Paris, 170 @ 175 lb.	10 @ 10 1/2
Green, Paris, small pack.	12 @ 17
Green, Chrome, ordinary.	6 @ 12
Green, Chrome, pure.	22 @ 25
Lead, Eng. B.B. white.	8 1/2 @ 10
Lead, Amn. White, dry or in oil.	7 @ 7 1/2
Kegs, lots less than 500 lb.	6 1/2 @ 6 1/2
Kegs, lots 500 lb. to 5 tons.	6 1/2 @ 6 1/2
Kegs, lots 5 tons to 12 tons.	6 1/2 @ 6 1/2
Kegs, lots 12 tons and over.	6 1/2 @ 6 1/2
Lead, White, in oil, 25 lb tin pails, add to keg price.	1 @ 1/2
Lead, White, in oil, 12 1/2 lb tin pails, add to keg price.	1 @ 1
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price.	1 @ 2 1/2
Lead, Red, bbls, and 1/2 bbls.	6 @ 7 1/2
Lead, Red, Kegs.	6 1/2 @ 7 1/2
Litharge, Kegs.	6 1/2 @ 7 1/2
Litharge, bbls, and 1/2 bbls.	6 @ 7

TERMS, &c.—Lead and Litharge.—On lots of 500 lb. or over, 60 days' time or 2 1/2 % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.	1.35 @ 1 1/2
Ocher, French Washed.	1 1/2 @ 2 1/2
Ocher, German Washed.	1 1/2 @ 3
Ocher, American.	1 1/2 @ 1 1/2
Orange Mineral, English.	8 1/2 @ 9
Orange Mineral, French.	10 @ 10 1/2
Orange Mineral, German.	8 1/2 @ 9
Orange Mineral, American.	8 1/2 @ 8 1/2
Paris White, English Cliff.	1.00 @ 1.15
Paris White, American.	65 @ 75
Red, Indian, English.	5 1/2 @ 7
Red, Indian, American.	2 @ 6 1/2
Red, Turkey.	9 @ 14
Red, Tuscan.	9 @ 11
Red, Venetian, American.	100 lb. 1.00 @ 1.10
Sienna, Italian, Burnt and Powd.	4 @ 5
Sienna, Ital. Burnt Lumps.	1 1/2 @ 3 1/2
Sienna, Ital. Raw, Powd.	4 1/2 @ 5 1/2
Sienna, Ital. Raw, Lumps.	1 1/2 @ 3 1/2
Sienna, American, Raw.	1 1/2 @ 1 1/2
Sienna, American, Burnt and Powdered.	1 1/2 @ 1 1/2
Talc, French.	1 1/2 @ 1 1/2
Talc, American.	1 1/2 @ 1 1/2
Terra Alba, Fr'ch. 100 lb.	95 @ 1.25
Terra Alba, English.	70 @ 80
Terra Alba, American No. 1.	65 @ 75
Terra Alba, American No. 2.	45 @ 50
Umber, Turkey, Burnt and Powdered.	3 1/2 @ 4
Umber, Turkey, Bnt. Ln.	2 1/2 @ 3
Umber, Turkey, Raw and Powdered.	3 1/2 @ 4
Umber, Turkey, R'w Lumps.	2 1/2 @ 3 1/2
Umber, Turkey, Bnt. Amer.	1 1/2 @ 1 1/2
Umber, Turkey, R'w Amer.	1 1/2 @ 1 1/2
Yellow, Chrome.	10 @ 25
Vermilion, American Lead.	11 1/2 @ 12
Vermilion, Quicks'g, bulk.	57 @
Vermilion, Quicks'g, bags.	58 @
Vermilion, Quicksilver sm'r pkgs.	62 @
Vermilion, English Import.	85 @ 90
Vermilion, Imitation, Eng.	8 @ 35
Vermilion, Trieste.	90 @ 92 1/2
Vermilion, Chinese.	92 1/2 @ 95
Whiting Common, 100 lb.	37 1/2 @ 42 1/2
Whiting Gliders.	45 @ 55

Zinc, American, dry.	7 1/2 @
Zinc, French, Red Seal.	7 1/2 @
Zinc, French, Green Seal.	9 @
Zinc, French, V. M. X.	7 @
Zinc, Antwerp, Red Seal.	7 1/2 @
Zinc, Antwerp, Green Seal.	7 1/2 @
Zinc, German, L. Z. O.	6 1/2 @ 7 1/2
Zinc, V. M. in Poppy Oil.	10 @
Seal, lots of 1 ton and over.	10 1/2 @ 11 1/2
lots less than one ton.	11 @ 11 1/2
Zinc, V. M. in Poppy Oil.	10 @ 10 1/2
lots of 1 ton and over.	10 1/2 @ 10 1/2
lots of less than 1 ton.	10 1/2 @ 10 1/2
Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 15 @ 25 bbls, 2 %; 50 bbls. 4 %. No discount allowed on less than bbl. lots.	

## Colors in Oil—

Black, Drop, Frankfort.	25 @ 30
Black, Drop, English.	12 @ 15
Black, Drop, Domestic.	7 @ 10
Black, Lampblack, Best.	20 @ 25
Black, Lampblack, Common.	7 @ 18
Black, Ivory.	8 @ 15
Blue, Chinese.	35 @ 40
Blue, Prussian.	20 @ 45
Blue, Ultramarine.	12 @ 18
Brown, Vandyke.	7 @ 12
Green, Chrome.	8 @ 13
Green, Paris.	16 @ 18 1/2
Sienna, Raw.	7 @ 14
Sienna, Burnt.	7 @ 14
Umber, Raw.	7 @ 10
Umber, Burnt.	7 @ 10

## Putty—

In barrels and 1/2 bbls.	.013 @ .014
In tubs.	.013 @ .014
In tin cans.	.013 @ .014
In bladders.	.013 @ .014

## Spirits Turpentine—

In regular bbls.	29 1/2 @
In machine bbls.	30 @

## Glue—

Low Grade.	8 @ 10
Cabinet.	12 @ 14
Medium White.	13 @ 15
Extra White.	17 @ 20
French.	10 @ 22
English.	10 @ 15
Irish.	12 @

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